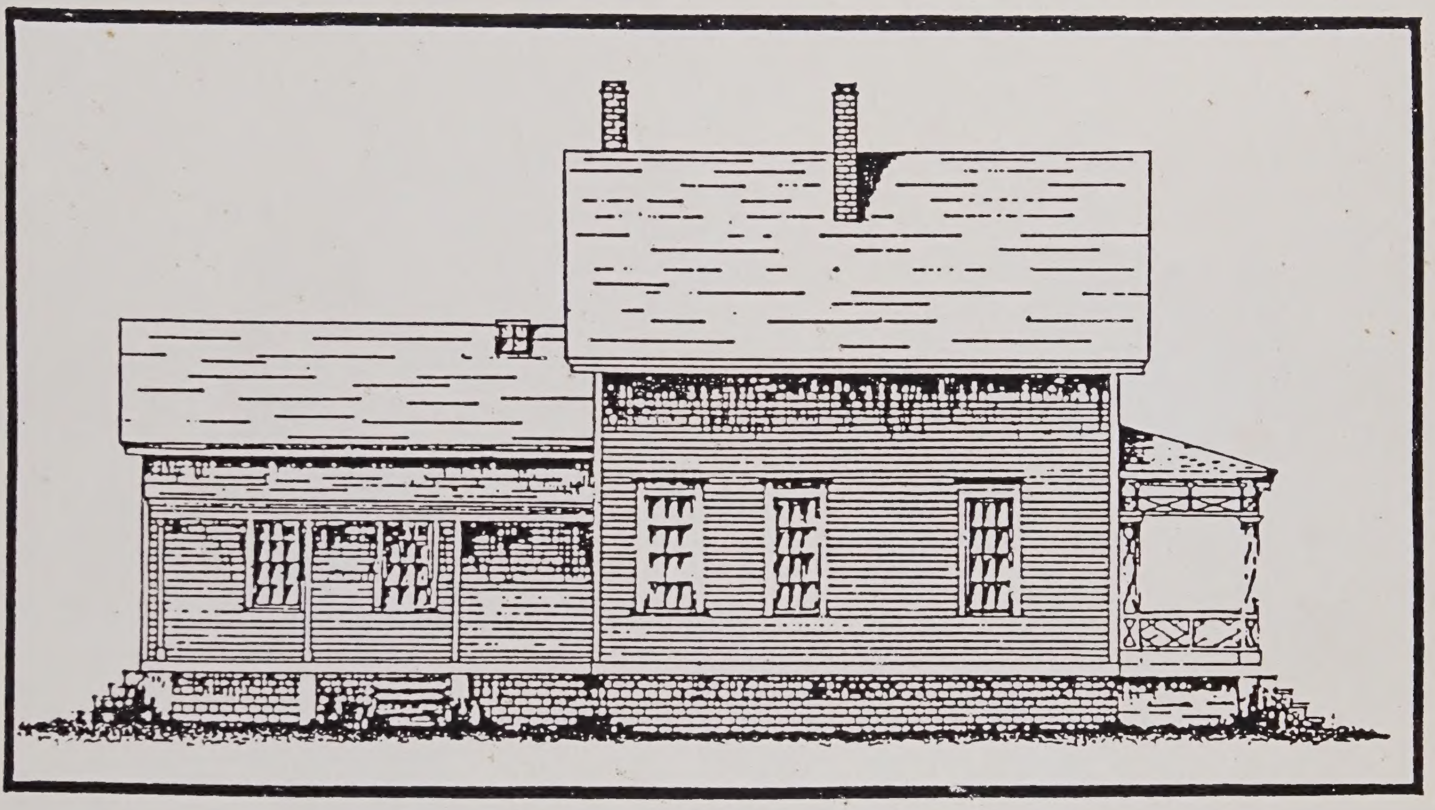
OLD POST ARCHAEOLOGY: EXCAVATIONS AT FORT STEVENS 1979-1980



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OLD POST ARCHAEOLOGY:
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1979-1980

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PREFACE

This report describes the results of archaeological investigations at Fort Stevens State Park in northwest Oregon (NE 1/4 and SE 1/4, Section 6, NW 1/4 Section 5, Township 8 North, Range 10 West). The site is near the town of Hammond at Point Adams, overlooking the mouth of the Columbia River. These excavations were conducted in the summers of 1979 and 1980 in the area of one of the officer's residences at the Civil War-era "Old Post" within what is now the historic area of the State Park.

The present paper includes an historic overview of the site, a description of the research design, and analysis of the material culture from the site. The goals set forth in the research design, outlined in Chapter One, were essentially satisfied through the excavation and analysis conducted as part of the research. It is hoped that a long term program of protection, management and interpretation will be established for this important site.

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ACKNOWLEDGEMENTS

Acknowledging others' assistance is the most pleasurable part of writing: it is done when the "real writing" is finished and affords an opportunity to publicly thank those who have contributed to the work. The present paper is the result of field work and preliminary analysis in 1979 and 1980 and final analysis and writing in 1989 and 1990. I'd like to take this opportunity to thank those who have helped in both phases of the project.

At the top of the list is my wife, Margie, who worked tirelessly in both the field and the lab. She has always been willing to put in the hours with shovel, trowel or wet, sandy level bag and produce results. Our children, Jeremy and Anji, have also helped; Jeremy by drawing the sketch on page 22, and Anji by producing a computer data base for the artifacts.

Dr. David R. Brauner has been my archaeological guide throughout my career. I appreciate his help and encouragement, busy man that he is.

The Clatsop Community College Board of Directors granted me a partial sabbatical to work on this project and I am grateful for their generous support.

Also helpful were various people at the College, Fort Stevens State Park and in the community, especially Don Stangel for assistance with the faunal remains, Sky Erickson for help with the ammunition, Edwin Hernandez for earlier versions of some of the drawings, and all those who contributed time, energy and enthusiasm in the field and the laboratory.

And, finally, to Amy Ross, who did much more than word-processing to prepare this paper for publication. It would not have been as well-done, nor as enjoyable, without Amy's help.

Thank you very much.

In 1979 and 1980, archaeological research was conducted in the officers' quarters area of Old Fort Stevens in northwestern Oregon (Figure 1). These projects were jointly sponsored by Oregon State Parks and Clatsop Community College in Astoria. The project was coordinated by Brian Harrison, anthropology instructor at the college, and Robert Sutton (in 1979) and Susan Scully (in 1980), park historians at Fort Stevens. The fieldwork was conducted as an archaeological field school with some volunteer assistance from members of the local community and interested visitors to the park.

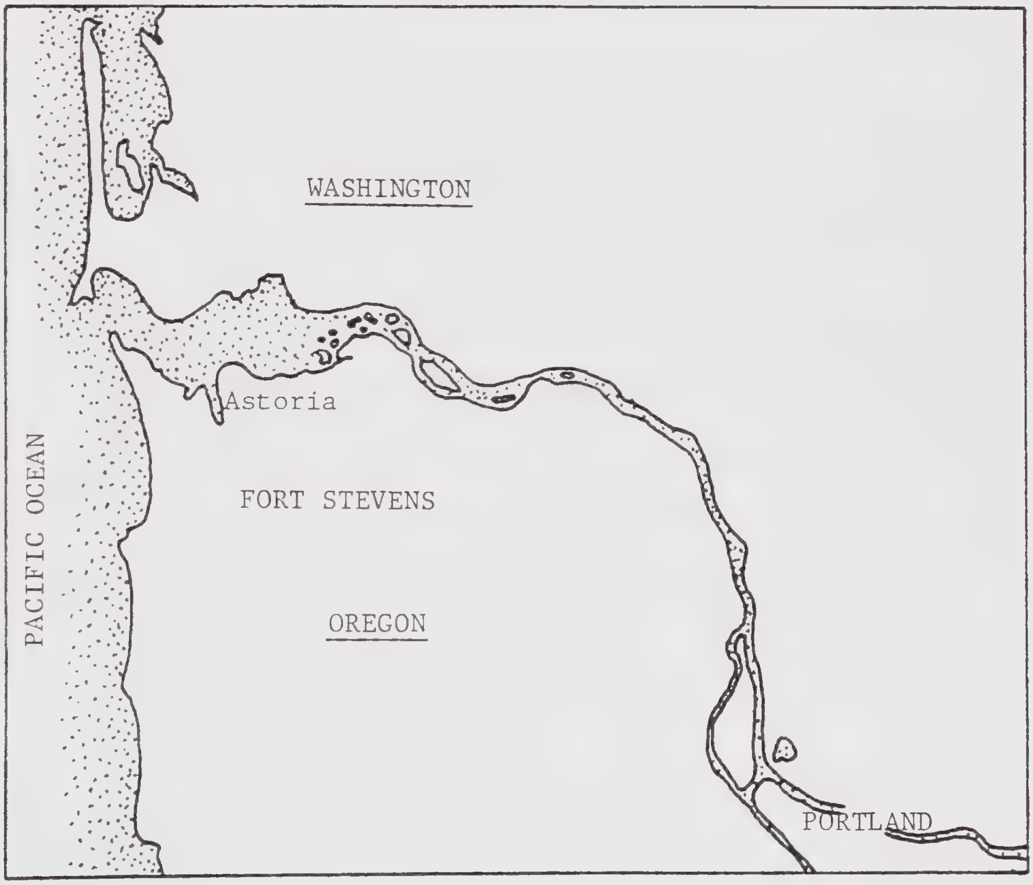


Fig.1

Location of Fort Stevens

The goals of the research included:

1. Locating the remains of one of the Civil War-era officers' quarters to assess the reliability of early maps of the Old Post.

2. Determining the extent of smearing and blending of the subsurface material remains.

3. Assessing the condition of the buried architectural remains and their suitability for display to the public.

4. Providing training in archaeological field techniques for students and interested volunteers.

5. Educating the visitors to the state park on the importance of historic preservation and cultural resource management.

These goals were largely achieved during the two year course of the project. Since the termination of the 1980 project, there has been further archaeological work at the site. In 1982 Leland Gilsen of the Oregon State Historic Preservation Office tested an area which was to be impacted by a new access road and a new parking lot. The results of the small-scale testing project indicated little adverse effect on the subsurface remains near a concrete barracks foundation. He found few artifacts, a very disturbed context, and little diagnostic material for dating or other purposes (Gilsen 1982:23).

In the spring of 1990, the present author tested the route of a proposed underground powerline trench between Battery Pratt and a power pole near the concrete restrooms to the south of the battery. Limited testing revealed no significant subsurface cultural resources (Harrison 1990).

Since then, there has been renewed enthusiasm for a major interpretive program at the fort, centered around complete or partial restoration of the original Civil War-era earthworks bastion, which later contained the concrete Battery Freeman. This idea has been considered periodically for over half a century, with the Astoria Chamber of Commerce proposing in the mid-1930s reconstruction of the Civil War bastion to its original condition as a major tourist attraction. The idea languished until recently when renewed interest in historic preservation and interpretation encouraged the park support group (Friends of Old Fort Stevens) to propose a reconstructive effort. The first stage of this effort required archaeological investigations in the areas of the moat (particularly near the sallyport) and the interior of the bastion, to assess the disturbance wrought by the construction and later destruction of the concrete Battery Freeman. This excavation, in conjunction with remote sensing and archival work, was carried out in the summer of 1989 by an archaeological field school directed by David R. Brauner of Oregon State University. (During this project, the Oregon State Historic Preservation Office assigned a site number [OR-CLT-1] to this previously unnumbered site.)

Further archaeological work at the site, for mitigative or interpretive purposes, will require continued cooperation between the State Parks Division, the Corps of Engineers, and

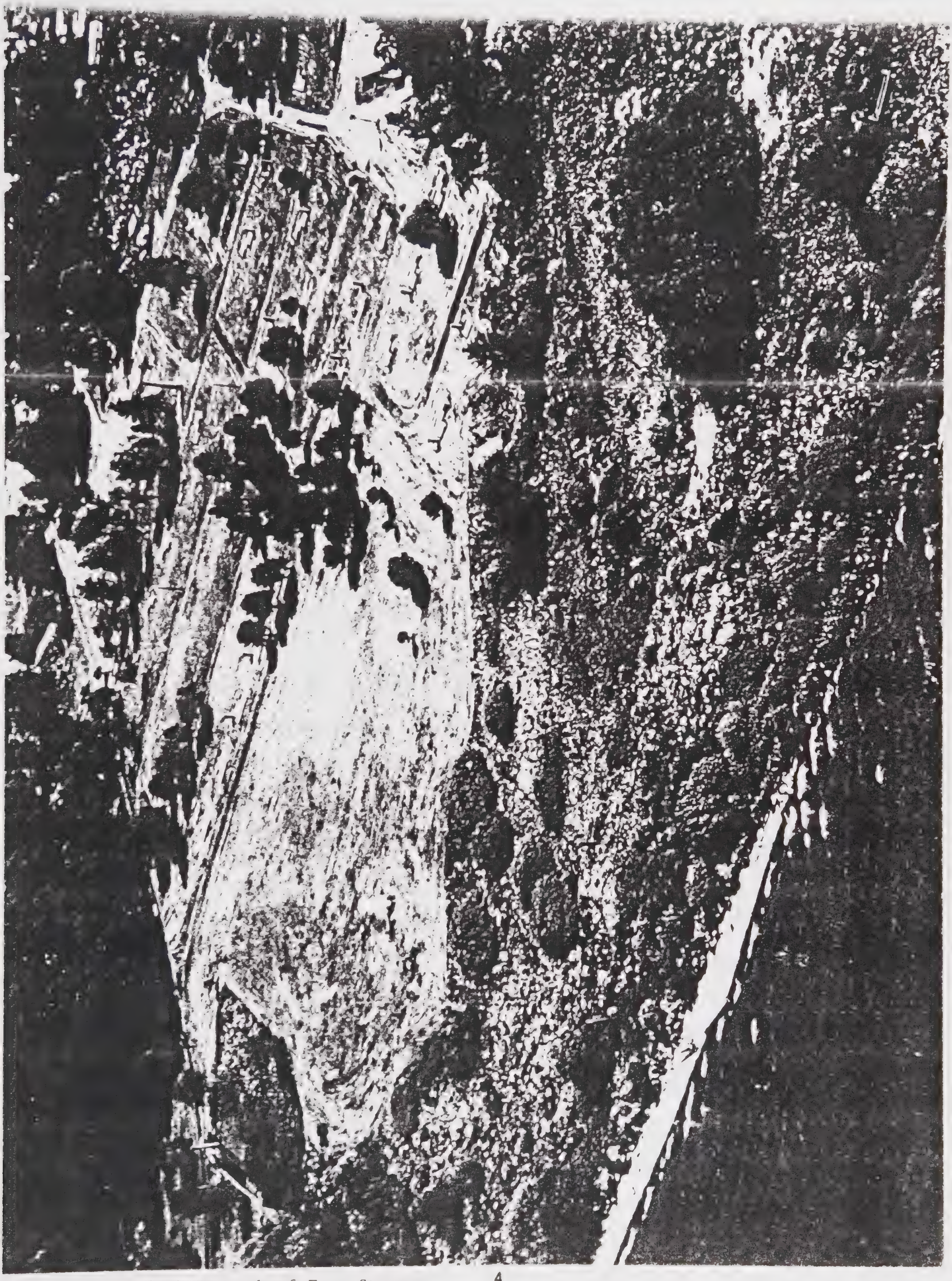


Fig.2 Aerial Photograph of Fort Stevens

professional archaeologists. All of the above parties agree that Fort Stevens, as one of Oregon's primary historic sites, should be protected, preserved and interpreted in a way which will enhance the site and display its history. A brief summary of this history is provided in the following section.

HISTORICAL OVERVIEW

Although there had been arguments in Congress as early as 1820 favoring construction of defensive works in the Pacific Northwest, by the beginning of the Civil War there were no forts at the two most strategic locations, the entrance to Puget Sound in Washington Territory and the mouth of the Columbia River. Most of the military units in the Northwest were there to prevent disturbances between native Americans and Euro-American trappers and settlers, primarily to protect the interests of the latter. At the onset of the Civil War, the officers and men of the 26 regular Army infantry and artillery units in Oregon and Washington territories were distributed among nine forts and two camps (Hanft 1973:1). The need for troops in the East resulted in significant reductions in regular Army personnel in the Pacific Northwest, but provided a renewed impetus for construction of fortifications at the two most important waterways north of San Francisco. Additional concerns were of leaving the military post of Fort Vancouver unprotected, discovery of gold in the interior with resulting increase in the population of settlers, the growth of the city of Portland at the confluence of the Columbia and Willamette rivers, and the presence of the British garrison and naval depot at Esquimalt Harbour on Vancouver Island.

After a survey of the area and repeated lobbying of the War Department, authorization was made for construction of Fort Stevens at Point Adams at the mouth of the Columbia River on the southern (Oregon) side and forts Canby and Columbia on the north side of the river, with Canby atop Cape Disappointment and Columbia at Scarborough Point. Construction of the fortresses was directed by Captain George H. Elliot, Engineer Corps, under the direction of Lt.Col. Rene De Russy, Chief Engineer, Department of the Pacific. At Point Adams, Capt. Elliot cleared brush and trees, laid out roads and constructed a bastion roughly pentagonal in shape with wooden scarp walls, a moat, and wooden counterscarp walls, surrounded by a glacis. The earthwork fortress, built on the river beach about one kilometer (.6 miles) inland from the contemporary ocean shoreline, was finished in April of 1865. Capt. Elliot had named the earthwork at Point Adams Fort Stevens, in honor of the late major General Isaac Ingalls Stevens, former governor of Washington Territory, who had been killed in the battle of Chantilly, Virginia, in 1862. Initial armament at the earthworks included 8-, 10-, and 15-inch Rodman cast iron smoothbores with barbette carriages, installed on wooden gun platforms; most of the guns had been installed by the summer of 1865, several months after the Civil War had been terminated. Within the next two years, the last of the armament had been installed, including, besides 21 Rodmans, five Parrott rifles (Hanft 1980:44).

Following completion of the earthworks and installation of gun platforms and most of the guns by the Engineer Department, the Quartermaster Department constructed some 20 buildings at the post. The first of these, authorized in November of 1865, was a quartermaster storehouse. Over the next two years, using contracted civilian employees as well as enlisted personnel, the quartermaster constructed a guardhouse, commissary storehouse, bakery, stables, forage shed, company mess, barracks, officers' quarters, hospital, ordnance storeroom, laundress' quarters, and the wharf. Over the next two decades, a number of other structures were added to the post, including an ordnance sergeant's quarters, schoolhouse, woodshed, wagon shed, hospital steward's quarters, and other buildings (Hanft 1980:60-61). Within a few years of construction most of these buildings, along with gun platforms inside the earthworks and the wharf, were badly in need of repairs due to the quality of materials used, the workmanship, and the extreme dampness of the local climate. The garrison soldiers, along with their infantry or artillery duties, were also kept busy with service functions in making improvements to the Fort.

Visitors to Fort Stevens, as well as officers making official reports, provide some information about conditions at the fort in its earliest incarnation. Mrs. Frances Fuller Victor

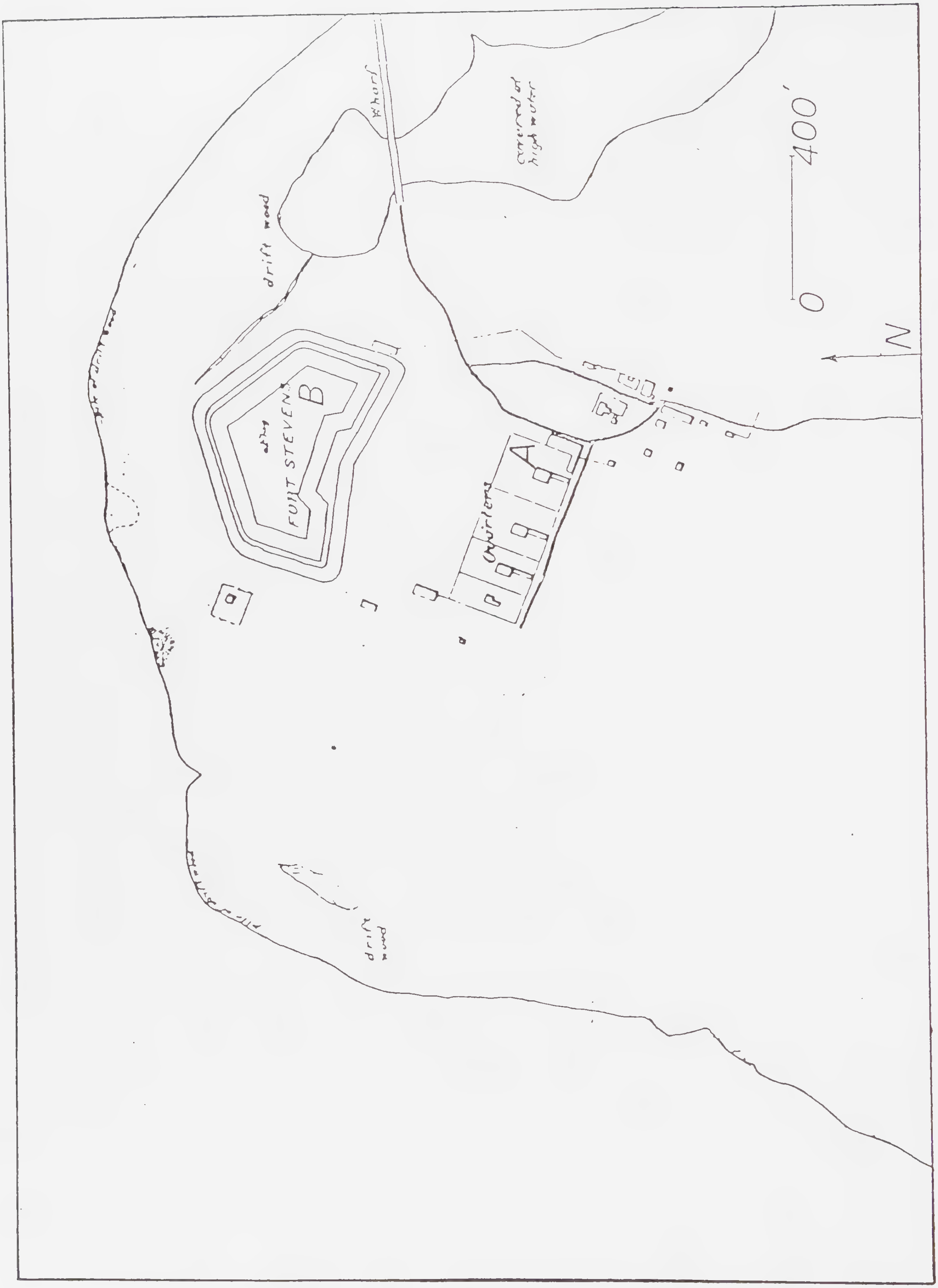


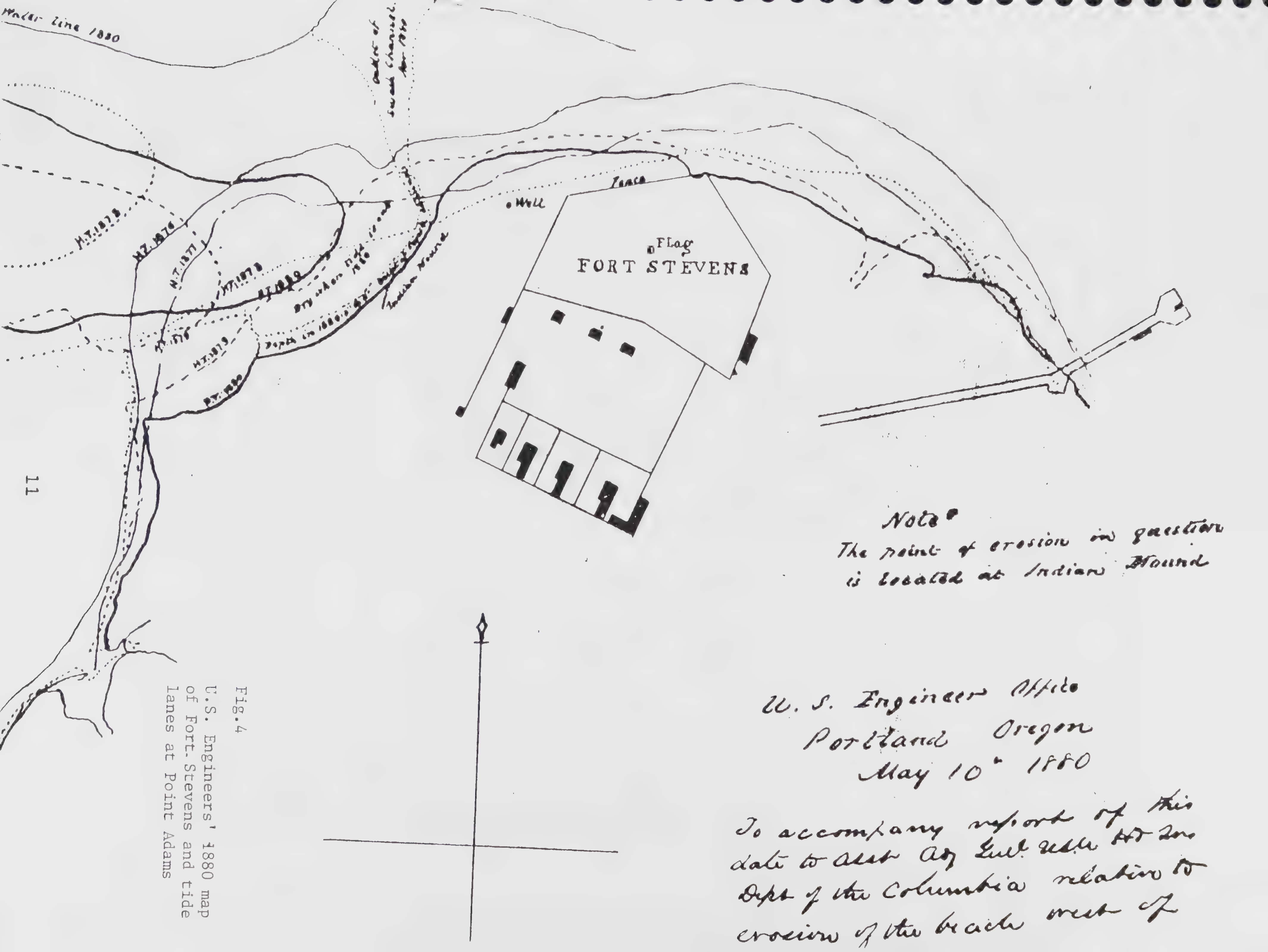
Fig.3

Location of 1979-1980 excavations (A) and 1989 testing (B) on 1897 base map of Fort Stevens said, "There is nothing handsome in the situation of Fort Stevens. The officers' quarters, outside the fort, are very pleasant; and, although there is nothing attractive in the appearance of the fort, or its surroundings, it is a pleasant enough place to those who have the good fortune to have the entree of its society." David L. Huntington, Assistant Surgeon at Fort Stevens from 9 December 1873 to 7 August 1874, wrote in an 1874 report that, "No repairs of importance have been made upon it [earthworks] for several years, and it is consequently at the present time in a most dilapidated condition." (Huntington 1875:484). He had generally positive remarks on other areas of the post, and on the health status of the officers and men stationed there. Hanft (1980) provides a fairly good description of the life at the Old Post especially relations between the military personnel and civilians in neighboring communities, particularly Astoria.

The newspapers of that community provide a commentary on these fort-town relationships during the Old Post period. The Astoria Marine Gazette included requests for bids for beef, hay, straw and oats as well as noting the accidental deaths of some of the fort's soldiers. The Weekly Astorian recounts a Christmas Ball at the fort as well as considerable detail on baseball games between the White Stockings of Fort Stevens (later the Excelsiors) and the teams from Astoria, Oysterville, the Hancocks of Cape Disappointment (Fort Canby) and a team from Fort Vancouver. A major social event was a Christmas Ball for civic leaders from Astoria and fort officials which was described in some detail in The Weekly Astorian, December 29, 1877:

> The members of Company "M" Fourth Artillery, bear the palm in the way of furnishing amusement and social enjoyment. On the 21st at Fort Stevens they gave one of the most recherche balls of the season. The Grand March was led off at 9 o'clock by Capt. Throckmorton and Lady with twenty couples following, in a room handsomely decorated with evergreens, flags and the various paraphernalia of war. The tables were arranged as only those who know how could arrange them and the edibles were such as would please the pampered palate of the most fastidious epicure. The music was furnished by an excellent orchestra band from this city. The terpsichorean festivities terminated at reveille. It was a pleasant, joyous time that will always leave a green oasis in the memory of those who participated in the festivities.

While the leaders of the two communities engaged in civilized repast, the soldiers were otherwise occupied. Hanft (1980:Chapter 10) relates the history of Astoria's rougher element involved in drunkenness, rioting, assaults, fighting, prostitution and shanghaiing and concludes that, while the men may have hired prostitutes and certainly drank alcohol, they were not arrested and jailed for either behavior. The fort was isolated at that time and it was, for better or worse, difficult to get to either Astoria or Seaside. A boat was required to reach Astoria, but Seaside could be reached by walking the distance of Clatsop Plains along the beach. Inez Stafford Hanson, in her "Life on 'Clatsop'" (N.D.:27-8) mentions that, "Soldiers were stationed there (Fort Stevens) and for some years afterward it was a common sight to see them, with their horses and army wagons traveling up and down the road toward Seaside".



Note.
The point of erosion in question
is located at Indian Mound

U. S. Engineer Office
Portland Oregon
May 10th 1880

To accompany report of this
date to Asst Adj Genl. [illegible] Hd Qrs
Dept of the Columbia relative to
erosion of the beach west of

Fig.4
U.S. Engineers' 1880 map
of Fort.Stevens and tide
lanes at Point Adams

Citing recollections of early Clatsop Plains settlers, she notes, "Some memories of the pioneers were of very simple pleasures and Maude and Daisy both remembered how they had enjoyed seeing the soldiers from Fort Stevens march past their house, occasionally. The men were dressed in blue, with white stripes down their trousers and they had on visored caps. They were on maneuvers, marching from Fort Stevens to Seaside and back again" (N.D.:49).

Life at the Old Post during this period (1865-1884) was prosaic, generally wet and often boring. The motive for construction of the fort passed even as the earthworks were being finished. The fort was occupied by a number of units during this time. Hanft (1980:271) lists them as follows:

Regiment, Arm or Defense Org.	Unit	Arrived	Departed
8th Infantry,Calif. Volunteers	Company B	26 Apr 1865-	12 Oct 1865
2nd U.S. Artillery	Company C	4 Oct 1865-	26 May 1871
2nd U.S. Artillery	Company M	22 May 1871-	27 Oct 1872
21st Infantry	Company I	22 Oct 1872-	3 Dec 1872
4th Artillery	Battery E	26 Oct 1872-	18 Oct 1877
21st Infantry	Company B	20 Nov 1876-	28 Mar 1877
4th Artillery	Company M	10 Nov 1877-	8 Feb 1881
21st Infantry	Company H	8 Feb 1881-	16 Sep 1881
4th,1st Artillery,21st Inf.	Detachments	Sep 1881-	Nov 1881
1st Artillery	Battery I	1 Dec 1881-	7 Sep 1883
1st Artillery,21st & 14th Inf.	Detachments	8 Sep 1883-	16 Nov 1884
Not Garrisoned		17 Nov 1884-	9 Mar 1898

As noted, the post had no garrison from 1884 to 1898. During this time the Corps of Engineers had unrestricted use of the military reservation during its construction of the south jetty at the mouth of the river. A wharf was built for unloading barged-in rocks for the jetty, a trestle railway was constructed, and approximately one million tons of rock were used in the jetty

(Hanft 1980:132).

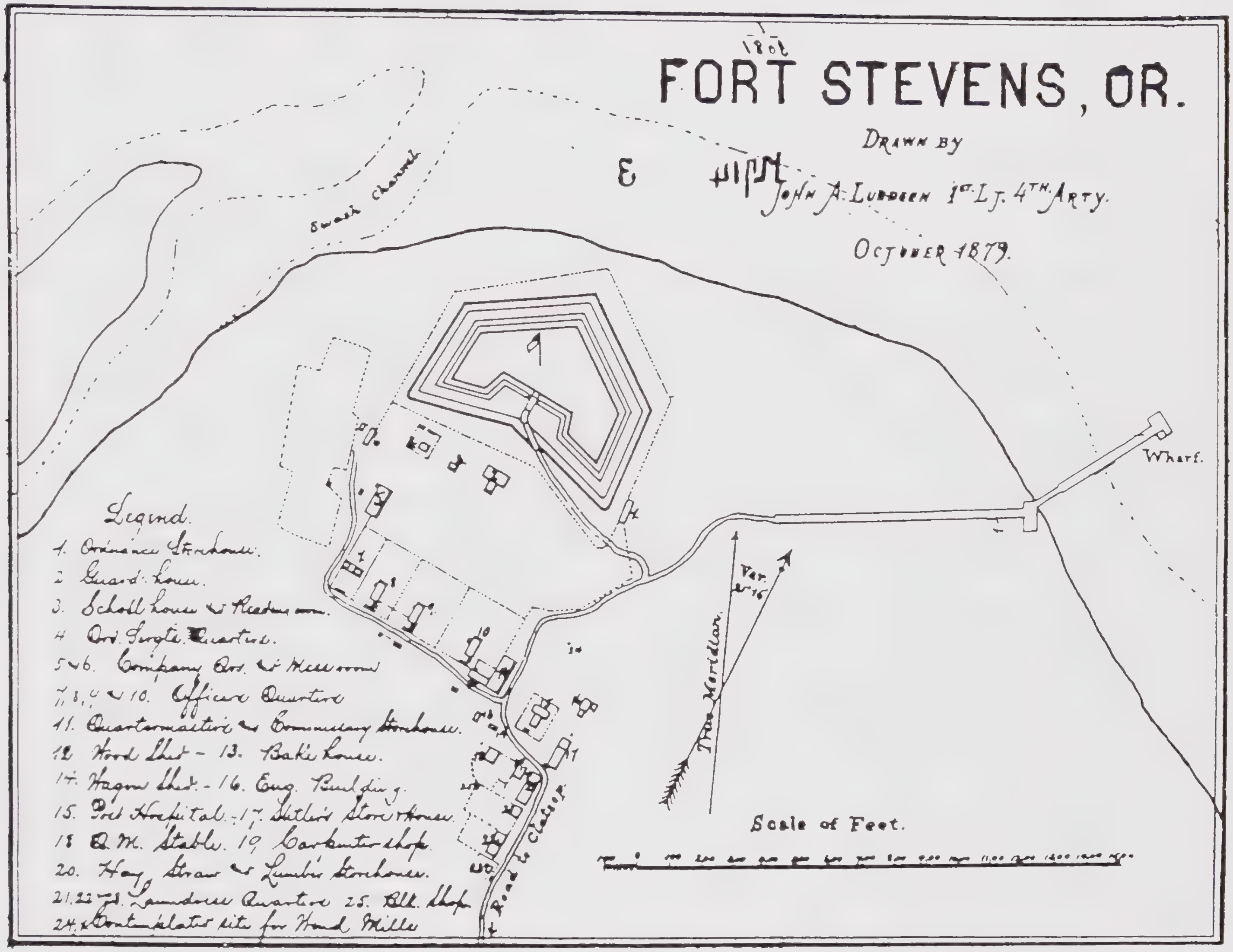

1802
FORT STEVENS, OR.
Drawn by
John A. Lundeen 1st Lt. 4th Arty.
October 1879.
Swash channel
Wharf.
Var. 21°15'
True Meridian
Scale of Feet.
Road to Clatsop
Legend.
1. Ordnance Storehouse.
2 Guard House.
3. School house & Reading room.
4 Ord. Sergts. Quarters.
5 & 6. Company Qrs. & Mess rooms
7, 8, 9 & 10. Officers Quarters
11. Quartermaster's & Commissary Storehouse.
12 Wood Shed - 13. Bake house.
14. Wagon Shed. - 16. Eng. Building.
15. Post Hospital. - 17. Sutler's Store House.
18 Q.M. Stable. 19 Carpenter shop.
20. Hay, Straw & Lumber Storehouse.
21. 22 & 23. Laundress Quarters 25. Blk. Shop
24. Contemplated site for Wind Mills

Fig.5

Map of "Old Post" produced in 1879, with locations of buildings

Towards the end of this period, new armaments were installed by the engineers at the West Battery, segments of which were later renamed Battery Lewis, Battery Mishler and Battery Walker. The mortar battery was also constructed, as was Battery Pratt, with 6-inch disappearing rifles and the 15-pounders on barbette carriages at Battery Smur. New guns were also installed in the old earthworks, the concrete emplacements of Battery Freeman, completed about 1903. It was during this time, too, that artillery troops regarrisoned the fort, wresting control of the reservation from the Corps of Engineers. Battery M of the 3rd Artillery arrived at the fort on 10 March 1898; with the onset of the Spanish-American War a general rehabilitation of the post occurred, with construction of a number of new buildings. These included new barracks, three double sets of officers' quarters, double sets of noncommissioned officers' quarters, an administration building, workshop, bakery, guardhouse, stables, quartermaster and subsistence storehouses, other buildings, and improvements to the water system, paths and roadways, sanitary and storm sewer systems and other work.

Various units of coast artillery were stationed at the fort through 1924, as were troops of the Oregon National Guard beginning in July 1907. Following the buildup of personnel and equipment during World War I, the fort was relatively inactive. The garrison was depleted following the Armistice in November of 1918, and by late October of 1921 the Coast Defenses of the Columbia were placed on caretaking status. During this time the Quartermaster Corps was actively involved in inventorying property and equipment and in redistribution or disposal of surplus items, including the demolition of older buildings. Headlines of the Morning Astorian (MA) and Astoria Budget (AB) of the era give a sense of the quiet years at the post:

26 April 1922	MA	"Fort Stevens to sell 41 unused building at public auction"
17 May 1928	MA	"21 buildings to be sold"
23 April 1931	AB	"Obsolete ammunition to be moved from fort"
26 April 1933	AB	"Fort Stevens to be barracks for Oregon Civilian Conservation Corps"
30 July 1935	AB	"New golf course completed"

The fort served as a training ground during these quiet years, until the buildup in the late 1930s preparatory to World War II. Six-inch guns were installed, with several new numbered batteries constructed. Most of the new structures built after the attack on Pearl Harbor (7 December 1941) were built for tactical operations at the fort, for example fire control baseline stations, submarine mine defense installations, and emplacement of radar equipment. The number of personnel stationed at the fort increased rapidly, and units of artillery were shuffled in and out of the post. Although the fort was attacked by a Japanese submarine on the night of June 21, 1942, it was a quiet reservation by 1945. In 1947, the War Department listed Fort Stevens, Fort Canby and Fort Columbia as surplus to its needs, and these posts were decommissioned. In 1967, the Oregon State Highway Department entered into a lease with the Department of the Army for 25 years and established Fort Stevens State Park at the site. Since that time improvements have been made to upgrade the camping facilities at the park as well as to interpret the historic area for visitors. Care has been taken in these various improvements to protect both the above-ground and the subsurface historic remains. Fort Stevens has been a National Register site since 1973.

RESEARCH DESIGN

Prior to the 1979 season, there had been no archaeological work done at Fort Stevens. Although contemporary maps of the early post were available they were sufficiently imprecise that historians and park officials could not locate the buildings exactly. The goals of the 1979 season, then, involved locating the remains of one of the Civil War-era buildings, determining the extent of preservation of the remains after more than 115 years of military and State occupation, construction and destruction, and providing as much information as possible to the State Park for use in managing and interpreting this National Register site. To accomplish these goals, a 12x12 meter grid was set up in the presumed area of one of the Civil War-era officers' quarters. This building was one of a series of four wood frame residences with brick foundations built facing the parade ground to the south of the pentagonal earthworks (Figure 6). The building under study was authorized in October of 1865, and constructed in 1866-68 by a local builder. Within a year of construction, the officers' quarters had begun to deteriorate; by the time of the Spanish-American War, the buildings of the "Old Post" were being replaced by more modern structures. The officers' quarters were totally replaced by 1910, when non-

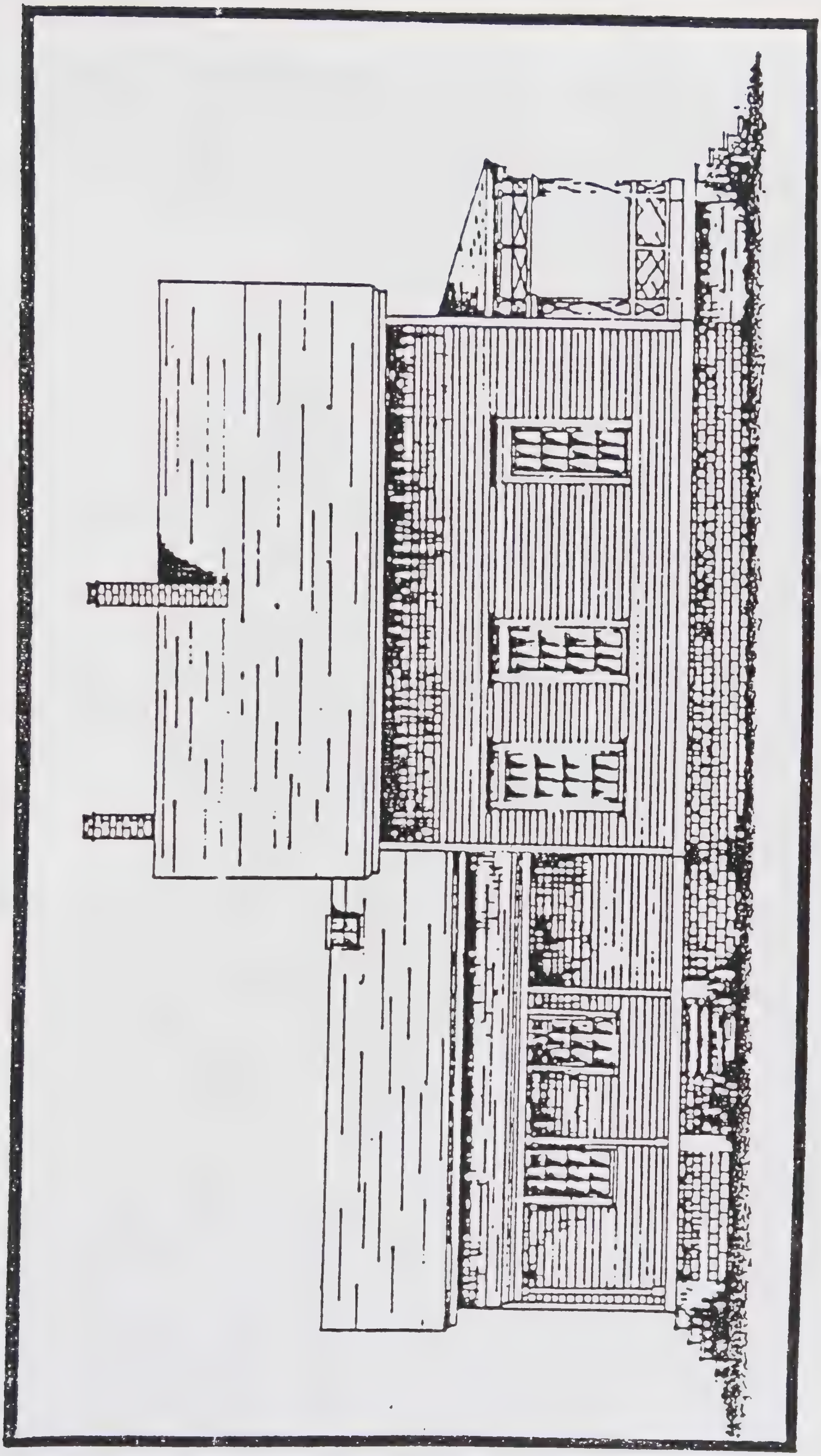


Fig.6

Side elevation of officer's quarters

commissioned officers' duplexes were constructed between them. The brick foundations of the NCO buildings are still visible at the historical area of Fort Stevens State Park (Figures 7 and 8). In the grass-covered areas between these foundations, there are no above-surface remains of the Civil War-era officers' quarters.

The 12x12 meter grid was set up the area between two of these Spanish-American War-era noncommissioned officers' dwellings. Volunteers and students in the Clatsop Community College archaeological field school excavated most of the area within this grid, using standard field techniques.

The grid was excavated in arbitrary 10cm levels, as were two 2x2 meter test pits north of the grid area. Provenience was recorded in three dimensions for all cultural materials designated as artifacts. In addition to the catalog number, all artifacts were coded to designate the precision of the provenience record. The following code categories were used:

Code 1	Exact provenience in three dimensions was measured *in situ*
Code 2	Provenience known within 50cm horizontally and 5cm vertically
Code 3	Provenience known within a single 2 meter grid unit and 10cm vertical level
Code 4	Provenience known within excavation area and by level
Code 5	Provenience unknown but from within excavation areas. An example would be an artifact found on the backdirt piles

Field school students and volunteers were impressed with the

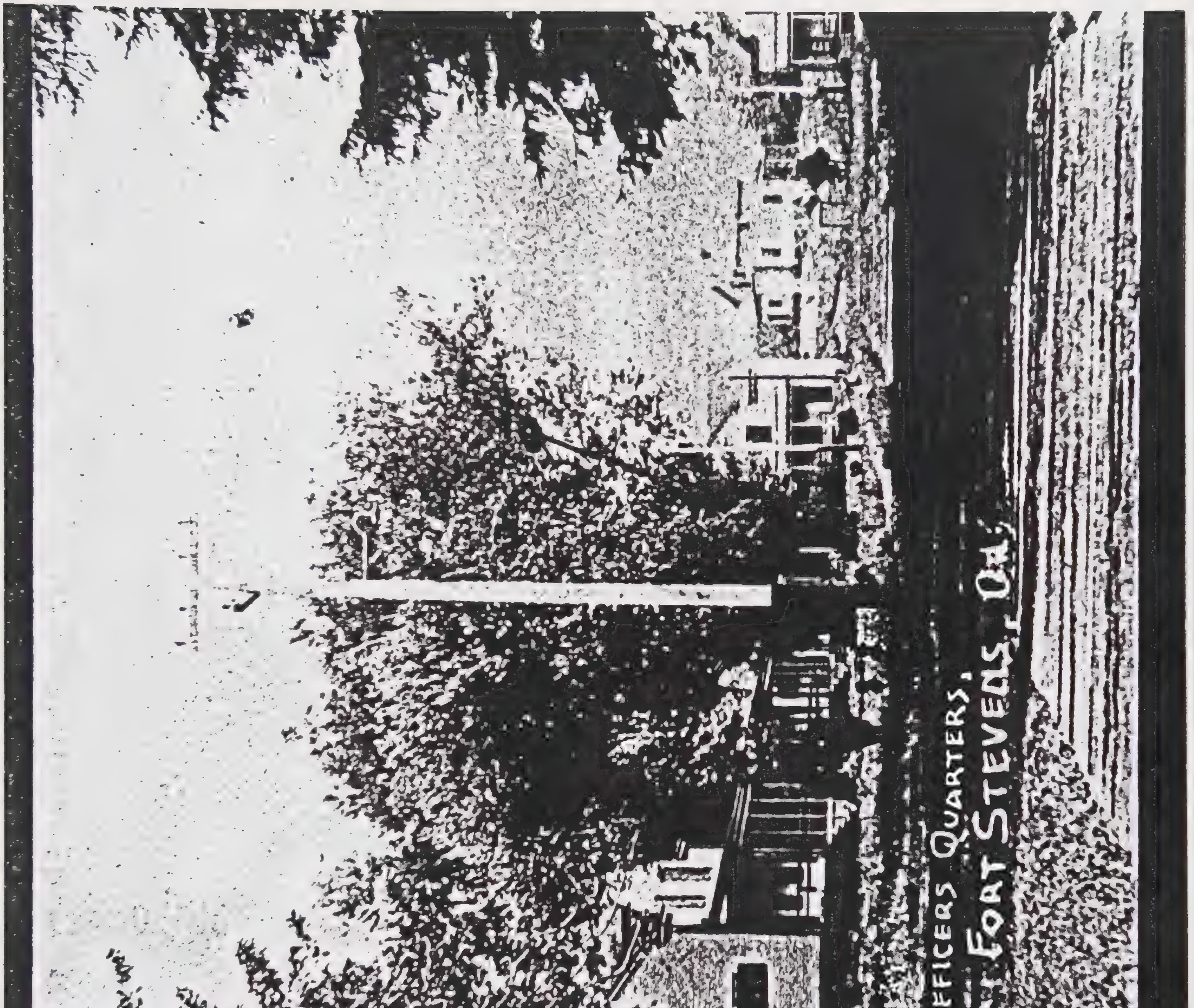


Fig.7

N.C.O. Quarters, undated (probably 1920s)

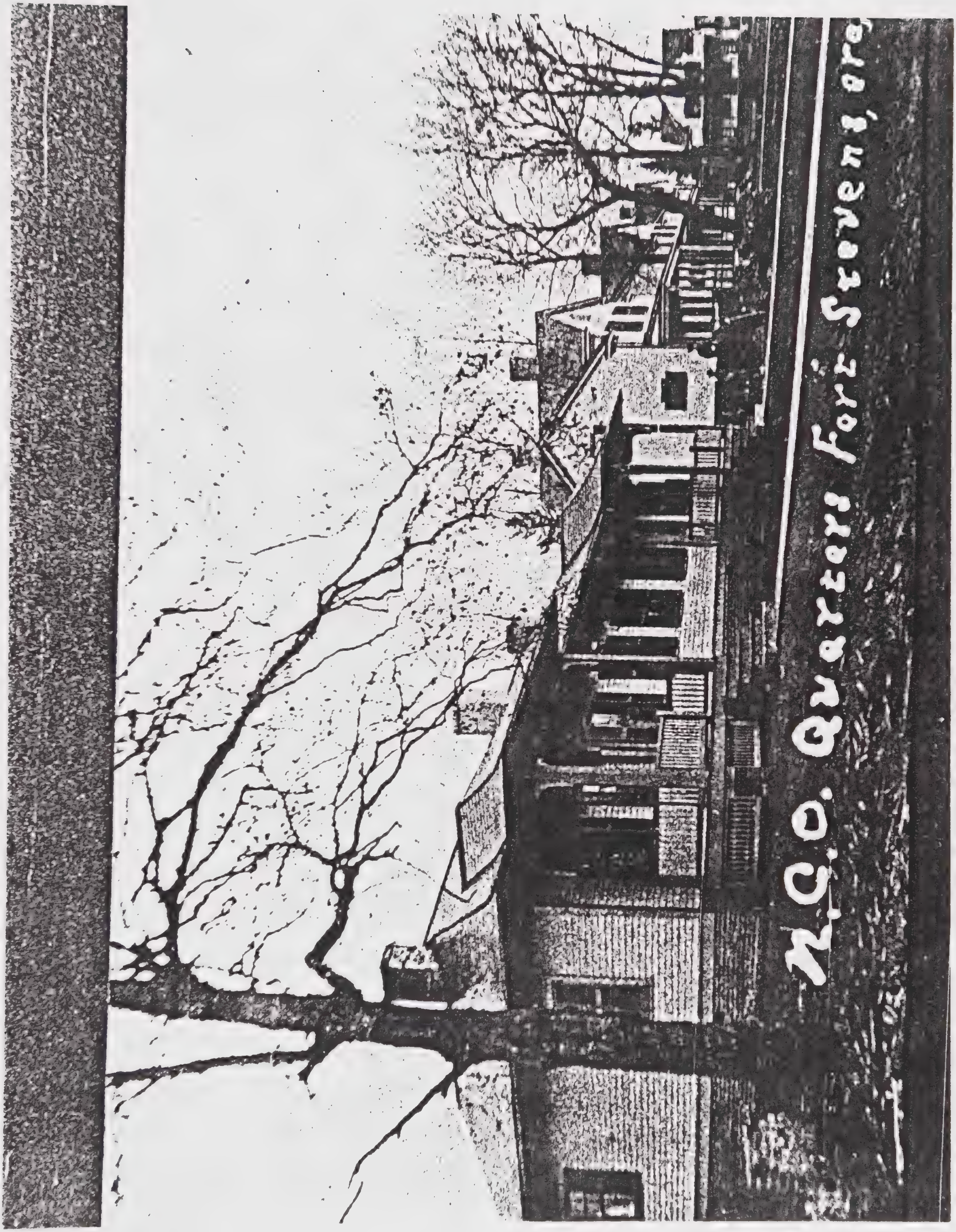


Fig.8

N.C.O. Quarters, undated (probably early 1920s) with brick foundations of early officers' Quarters between them

necessity of careful excavation and record keeping; they became quite proud of their ability to find small objects, such as straight pins, in situ.

As features were excavated, artifacts were left in place until that level was excavated throughout the grid. Features were drawn and photographed after excavation (Figure 9).

Over 1,500 artifacts were found in the excavation; included in this number are representative items of most areas of life at the fort, including building materials, clothing parts, toys, ammunition, tools and hardware, tableware, bottle fragments, and an assortment of unidentifiable iron and steel objects in a poor state of preservation. There were 186 full units (2x2x.1 meters) and 38 partial units excavated during the 1979 season, or approximately 82 cubic meters.

As analysis and interpretation of these materials proceeded, it became apparent that there has been extensive smearing and blending of the material culture at the site. This has been caused by the long period of military occupation of the area, with attendant construction of water and sanitary sewer lines, and rodent activity and weathering processes. As a consequence, cultural materials from the earliest levels of the site were intermingled with much more recent artifacts.

An attempt to clarify the vertical and horizontal distribution of artifacts attendant on destruction of the building was one goal of the 1980 season. Excavations at Fort Stevens in the second year of the project followed essentially

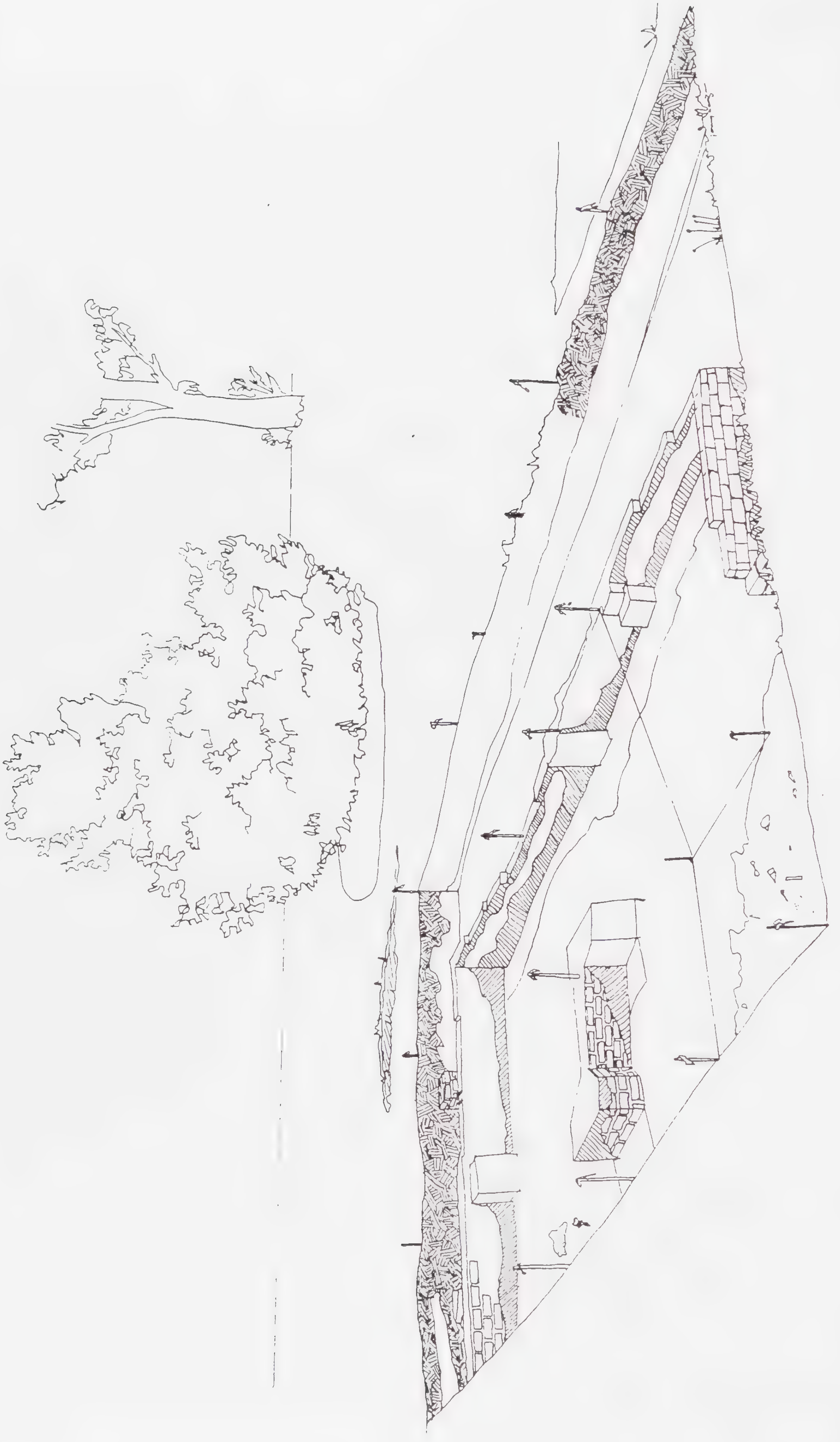


Fig.9

Sketch of 1980 excavations at officers' quarters (by Jeremy Harrison) the same format as in the previous season. The grid system was extended north to include most of the area between the 1979 grid and the test pits. The result was a 14x6 meter excavation unit, overlaid on the northeast quarter of the building (Figures 10 and 11).

The area within the grid was again excavated in arbitrary 10cm levels, to an average depth of 90cm. One hundred and thirty full units were excavated along with 16 partial units, for a volume of about 55 cubic meters. Portions of the building foundation and fireplace base which were found intact were left *in situ*, while the rest of the grid was excavated to sterile sand.

Building materials were not, in general, recorded as artifacts. They were, however, mapped in place, and the quantity of each of several types of debris was recorded for each 10cm level and 2x2 meter grid square. These building materials included bricks, nails, window glass fragments, pieces of plaster and mortar, roofing slate, and fragments of finished lumber. Seventeen shards of window glass, averaging about one square centimeter in dimension, were found. Thickness was about 6/64 inches (.093"). All other cultural materials were treated as artifacts, with provenience recorded in three dimensions and laboratory processing of individual items.

Portions of the foundation and fireplace base were found intact, while jumbled brick and scattered nails are all that remain of other segments.

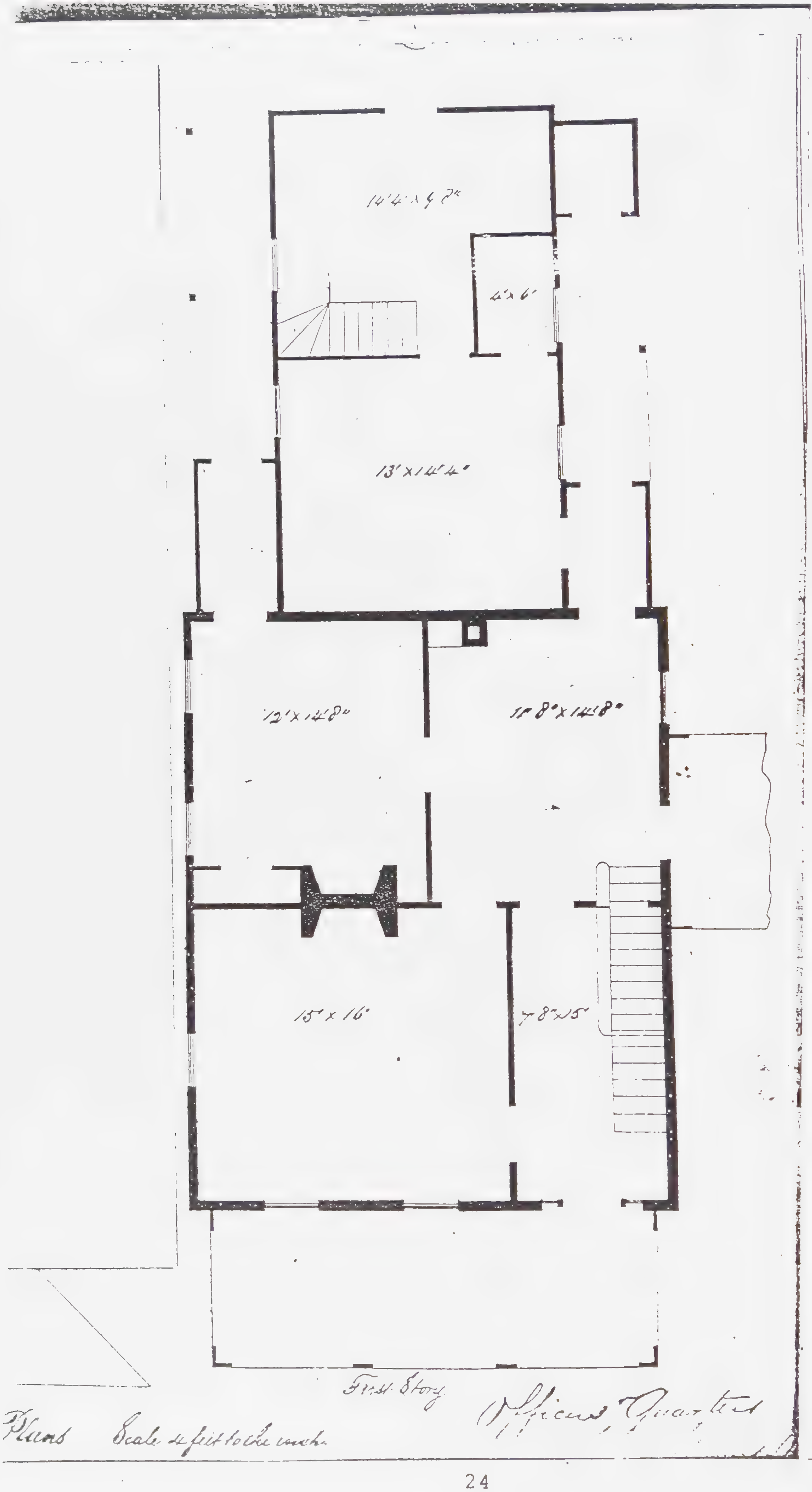


Fig.10

Undated first floor plan of officers' quarte with room dimensions and scale

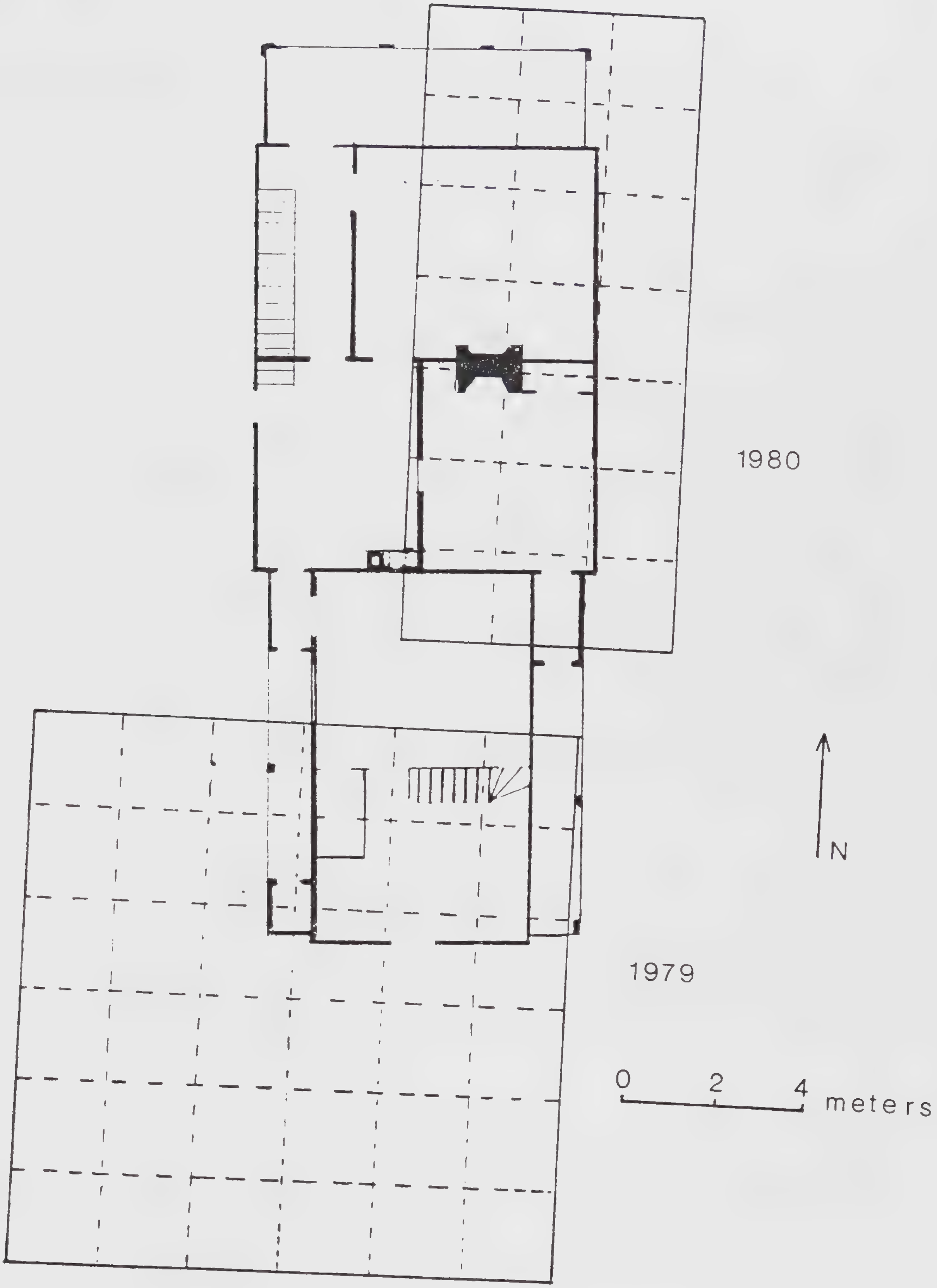


Fig.11

First floor plan with grid overlay from 1979 and 1980 excavations

The artifacts found in association with this portion of the foundation were fewer numerically than in the 1979 season. This reflects both the smaller size of the excavation and an apparent tendency for debris to be lost or disposed of to the rear of the building, rather than on the side facing the parade ground.

Although fewer in number, the artifacts found in 1980 seem to represent as many areas of military post life as those of the previous season. In terms of the proportion of artifacts related to particular aspects of life, the only significant difference seems to be in the category of armaments, which includes spent bullets and shells. In 1979, 16% of those objects defined and treated as artifacts were in this category, while 7% were in the following season's work.

The following sections will describe the results of these excavations.

ARCHITECTURAL FEATURES

As noted, the research design of the Old Fort Stevens archaeological project focused on an open excavation of a portion of one of the Civil War-era officers' quarters. The building was one of a series of four wood frame residences with brick foundations built facing the parade ground to the south of the pentagonal earthworks. The building under study was authorized in August 1866, and constructed in 1866-68 by a local builder at a cost of $3,805 in coin (Hanft 1980:64). Information gathered by Hanft about the construction of the officers' quarters is summarized below.

Location: The line of four buildings paralleling the rear of the earthwork, was separated from it by the parade ground, and extended westward from hospital hill.

External Description

Three sets of quarters were built on the same plan. The fourth, at the western end of the row, was originally used as an office containing two rooms. From this it was modified to provide essentially the same space as the others, but in placement it extended in length generally east and west. The other three sets extended in length generally north and south. The buildings all had covered porches in front (parade ground side), and were raised three feet from the ground. Each main building was one and a half story high, with an L to the rear one story high. All were gable roofed. The fronts were painted and the sides whitewashed. Originally each set was furnished with exterior venetian blinds, but these were soon destroyed by rot and the force of winds. In the first three sets the main sections were 24' at the front, by 29' on each side. The rear sections were 23' at the front and 25 1/2' on each side. In the fourth set the main section had a 24'9" front, 17'6" width, and a wing with a 17'9" front and a 32'6" width.

Internal Arrangement

The ground floor contained four rooms with 10 1/2' ceilings. These included a parlor, 14'x16', a bedroom adjoining, and a storeroom or washroom, 10'x12'. Upper story: one bedroom, 15'x15 1/2', with 9' ceiling, and a second bedroom 13'x13 1/2', two storerooms or closets. Over the kitchen a loft was divided into 2 rooms described as "suitable for servants."

Additional Description

A small cellar under each kitchen had a water well, with a pipe extending from the well to a pump in the kitchen. A privy in the L was reached by a connecting covered porch. There were fireplaces in two rooms downstairs; other rooms being heated by stoves. Walls and ceilings were plastered and painted. To the rear of each quarters was a woodshed. Yards were fenced.

Assistant surgeon D.L. Huntington (1875:485), in his report on the hygienic conditions at the post for an 1875 Army compilation, gave the following description of the officers' quarters:

> Four houses, cottage style, are used as quarters for officers; three of them are built on the same plan, the fourth slightly modified. They are built of wood, one and a half stories high, with an L. On the ground-floor they are divided into a parlor, 16 by 14 feet; a bed-room adjoining, 12 by 12 1/2 feet; a dining-room, 13 by 12 feet; a kitchen, 12 by 12 feet, with good sized pantry adjoining, and a store-room or wash-room, 12 by 10 feet. On the upper story is a bed-room, 15 by 15 1/2 feet, 9 feet high; a second bed-room, 13 by 13 1/2 feet, and two smaller rooms suitable for store-rooms or closets; over the kitchen and wash-room is a loft divided into two good sized rooms, suitable for servants. Under the kitchen is a small cellar, and in the rear of the building a good woodshed. The houses are in good repair, with walls and ceilings hard finished and painted. The larger rooms below are heated by fire-places, the upper rooms by stoves.
>
> A large rain-water tank is built in the rear of each house, and communicates with the inside by pipes. Each house is surrounded by a large piece of land, well fenced, suitable for garden or lawn.

In mentioning the buildings of the Old Post, Hanft says that, "Fir lumber was used in these structures. It was locally available in any quantity. Some for the first buildings came from I.West and Company of Westport. Other materials were purchased from George Flavel of Astoria. Brick was obtained from Kapus and Drake, hardware and iron from E.I. Northrup and Company and paints and oil from Smith and Davis, all of Portland, Oregon," (1980:60).

Within a year of construction, the officers' quarters had deteriorated to such a degree that extensive repairs had to be made to the walls, shutters, roofs, foundations and chimneys. In 1867, for example, a civilian mason was hired to rebuild chimneys in the officers' quarters because they were cracked and leaked smoke. Drainage was often a problem at the fort, especially in the stormy winter months. "During the winter of 1866-1867, water stood twenty inches deep under the officers' quarters..." (Hanft 1980:80).

Still, when Mrs. Frances Fuller Victor visited in 1871, she noted that, "The officers' quarters, outside the fort, are very pleasant..." (1872:40). Hanft (1980:101) notes:

> The quarters themselves, painted and whitewashed at the time, would have given an impression of neatness and good order, particularly when viewed from the earthwork across the parade ground and against the blackness of the forest behind them. Inside they were spacious, if not well planned or adequately ventilated; and over the years until about 1880, these buildings gradually gained improvements of convenience. In the beginning there was for each kitchen a pump to lift water from the well in the cellar below. These were soon supplemented by water collecting tanks which had outlet pipes leading into the kitchens.
>
> Bathrooms with hot and cold water facilities were provided in all the quarters in 1878. Near the end of the decade "water closet apparatus" sets with sewer pipes leading to the sinks formerly used were put in three sets of the officers' quarters. It was almost a year later though, before water pipes from the central windmill-fed tank reached each of the buildings. Other important additions of these years were stationary washstands and washtubs.

Thus there were improvements made to the officers' quarters, and indeed to all the buildings of the Old Post, even as structurally they continued to deteriorate as a consequence of the quality of materials and workmanship and the extreme weather conditions. Apparently, too, there was some reluctance to expensive improvements by higher military officials, as the permanence of the fortifications was occasionally in dispute. Still, the officers' quarters were liveable and no doubt were enjoyed by their various occupants during the Old Post years. Even during the jetty construction period, the buildings of the Old Post were used by civilian employees and troops. Until the four double sets of wood frame noncommissioned officers' quarters and a double set of firemans' quarters were built, these ranking enlisted men were housed in the original officers' quarters.

"It was only after the quartermaster had submitted estimates for 'urgent repairs' to these decaying structures in August 1908, and this after numerous requests for additional noncommissioned housing, that the new quarters were allowed," (Hanft 1980:200). The officers' quarters, then, survived until at least 1909. By 1920, though, the only buildings left from the Old Post were said to be the guardhouse, the magazine and a "target house" (Hanft 1980:200).

A contrary report on the date of demolition of the early buildings is found in The Morning Astorian (page 1) from March 16, 1922:

> Old barracks buildings, officers' quarters and ordnance buildings which, it is estimated, will bring approximately $15,000, will be auctioned at Fort Stevens about May 1, according to an announcement from the fort last night. Details of the auction are being shaped now by Captain Carlson in command of the fort, and it was said that the auction would be held not later than May 1.
>
> Among the materials to be auctioned are lavatories,

> lumber and other fixtures of the barracks quarters which have been slightly used and will be sold at a sacrifice, it was said.

The commanding officer quoted above was Captain William R. Carlson, Coast Artillery Corps, who was in charge of the fort from 26 October 1921 to 19 February 1923. Most of the buildings which were auctioned on 10 May 1922 were cantonment barracks from the World War I buildup, and it is assumed that the "officers' quarters" sold at the same time were from the Old Post, contrary to Hanft's reference.

Prior to demolition of the early officers' quarters, double sets of noncommissioned officers' quarters had been constructed in 1900, 1906 and 1909. An early photograph shows the NCO buildings with barely discernable remains of the early officers' quarters between them. The later foundations appear to have been installed at a slightly higher elevation than the earlier ones, and this was confirmed by excavation. Evidence of water and sewerage systems as well as electrical power for lighting and coal for heating was also found in the excavation.

The water supply for the fort was problematic during the early decades of its existence. Hanft describes the perennial problems the Army had in providing potable water for the personnel stationed there. He notes (1980:295) that there were eight wells at the early post, including one in the cellar of each of the officers' quarters. Water was also collected from roofs into cisterns, and later a series of mostly unsuccessful wells was dug. The water problems continued until finally a contract with the city of Warrenton in September of 1917 provided piped-in clean water from the Lewis and Clark River (Hanft 1980:205).

Electrical power for lighting was generated at the Fort by a central power plant constructed around 1910, with three 80 horsepower steam engines, each connected directly to a 50 kilowatt generator. These produced 220 volt direct current distributed on a three wire system. In the summer of 1922, Pacific Power and Light Company extended its line from Flavel (near Hammond) to the fort (Hanft 1980:244).

Although some drainage systems had been constructed earlier, it was not until May of 1900 that a sewage system was installed (Hanft 1980:198,202). Other site improvements over the years included fencing, sidewalks and roads.

Thus the area of the Old Post officers' quarters was subjected to a good deal of construction, remodeling, utilities upgrading and destruction from 1866 through the 1920s. This is translated into subsurface disturbance of the architectural and other material remains. Indeed, the only remains left in situ from the earliest construction are remains of the brick foundation and the base of the main fireplace in the dwelling, shown in Figures 12 and 13. The rest of the material culture had been subjected to extensive smearing and blending due to the construction of water and sanitary sewer lines, rodent activity and weathering processes. As a consequence, cultural materials from the earliest levels of the site were intermingled with much

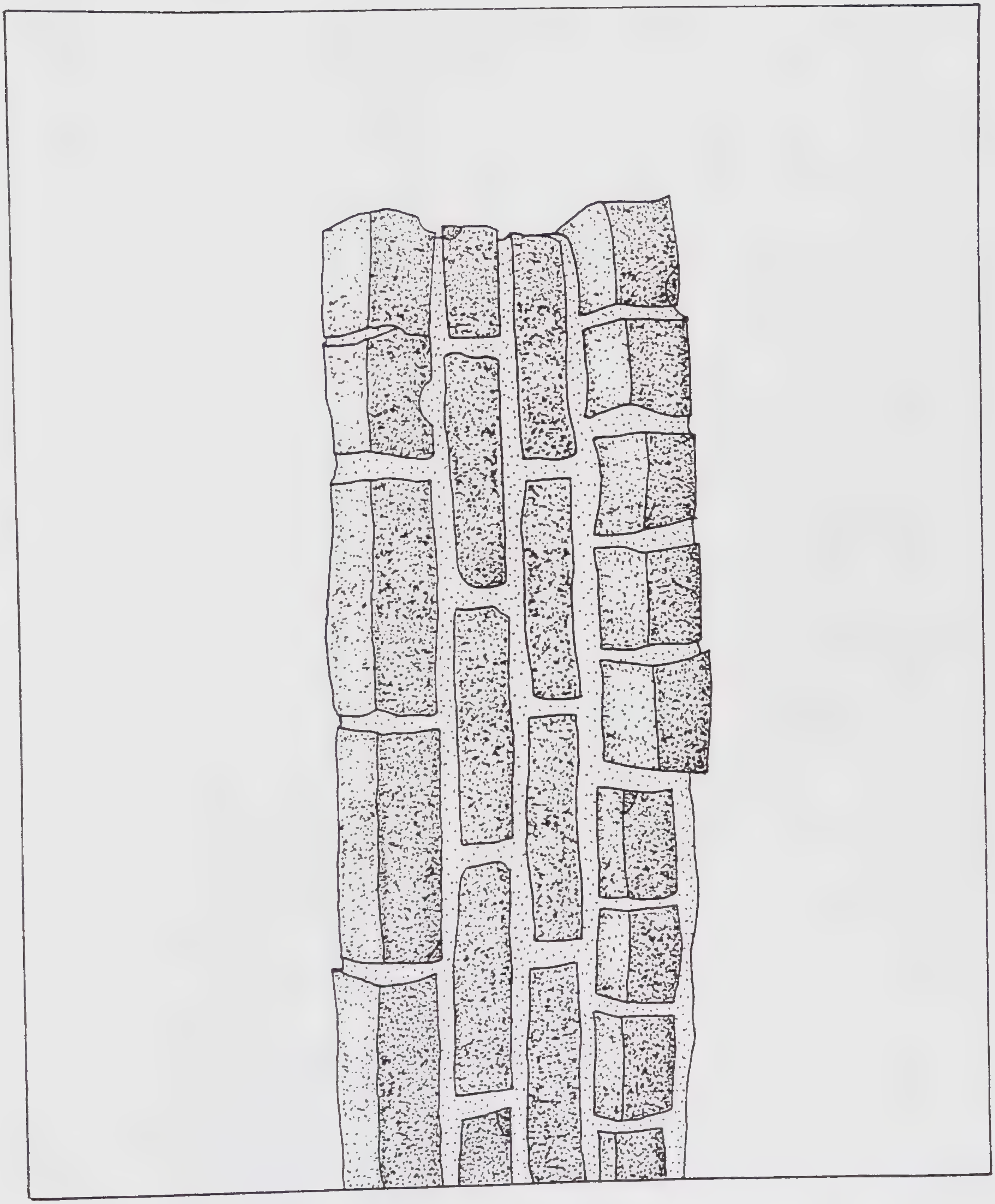


Fig.12

Portion of brick foundation

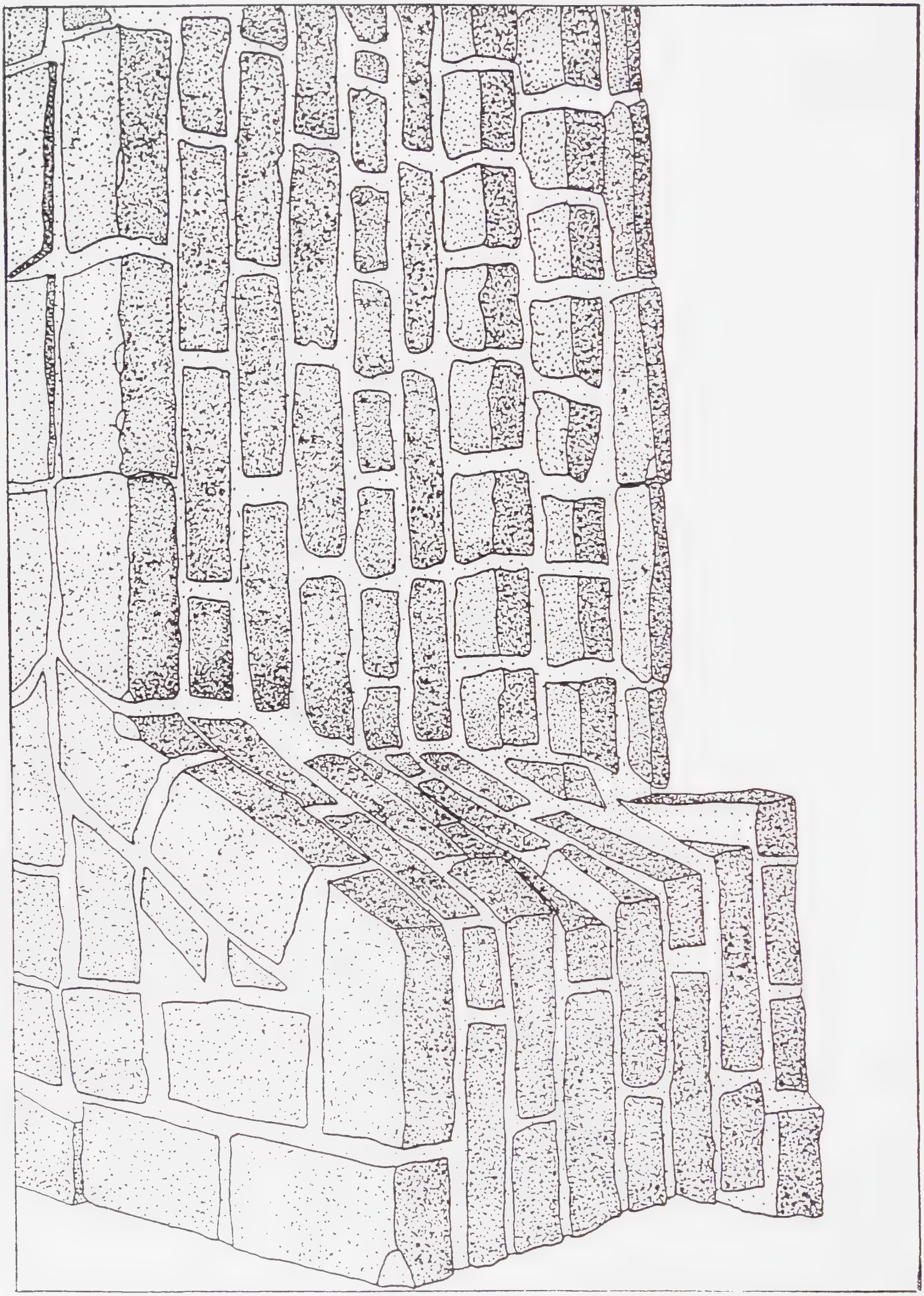


Fig.13

Portion of brick fireplace base

more recent artifacts. It was hoped that careful mapping of the debris would help to reconstruct some of the processes of demolition, but the disturbance of the site made that goal very difficult to achieve. At the very least, the foundations of the building have been located and studied. Building materials have also been recovered, but may represent later construction and destruction episodes.

MATERIAL CULTURE

The artifacts recovered during excavation of a portion of the officers' quarters represent the results of human activity at this site, and the analysis which follows will attempt to reflect and define this activity. The purely descriptive work in this section includes the technological, formal and stylistic attributes of the artifacts: materials used, manufacturing processes, modifications through use or wear or mutilation, shape and size, and decoration. In many cases, date and location of manufacture may also be noted. This descriptive base is contained within a pragmatic functional classification scheme, since the various attributes reflect how a particular artifact was utilized in the course of some human behavior, *i.e.* recreation, writing, food preparation and so on. The majority of the artifacts are attributable to a known functional category, with less then 10 percent lacking function-defining traits which would allow them to be properly categorized. In the latter case, artifacts are classified by morphological attributes and material of manufacture, and some tentative identifications are presented.

It must be acknowledged that many pieces of material culture will not fit neatly into any functional classification system; a slate pencil is used for writing, but could as easily serve for totting up household accounts as for instruction of children in a schoolhouse setting. In a similar fashion, lead bullets may be placed in the category of defense, subsistence or recreation; they may have been used as fishing sinkers or flattened and marked to serve as gaming pieces.

The system used here for artifact classification follows closely Sprague's (1980-81) scheme of functional analysis of 19th and 20th century archaeological sites, in which artifacts are placed in one of a number of functional categories and described within the context of that class. The material culture from the officers' quarters was sorted into three levels of functional analysis; the first level is the utilization context, for example, architecture, domestic and personal categories. The second level is defined by the type of activity within the utilization context; the personal context, for example, would include items of body ritual and grooming. The third level of analysis is based on more refined criteria of function and may include specific details of decoration or use-wear patterns where appropriate. An example of this scheme would be as follows:

Level 1: Personal Items
Level 2: Clothing
Level 3: Button, general service design, cuff

A description of technological, formal and stylistic attributes, distribution data and maps, and time and place of manufacture are included for many of the artifacts.

The following outline from Sprague but modified for use in this particular context, illustrates the organization of the material culture for purposes of analysis. This taxonomy has been successfully applied to a number of historic sites in the Northwest. It is also fairly consistent with the classification system of South (1977); this system assorts cultural materials by form and function, and is intended to reflect human use patterns. Discussion of the collection of artifacts also follows this arrangement.

PERSONAL ITEMS

Clothing: Buttons, garters, suspender clasps, grommets, footwear, etc.

Adornment: Beads, jewelry, etc.

Body Ritual and Grooming: Combs, toothbrushes, razors, toothpaste tubes, etc.

Indulgences: Alcoholic beverage bottles, smoking materials, pipes, opium boxes, etc.

Pastimes and Recreation: Toys, dolls, marbles, etc.

Pocket Tools and Accessories: Pocket knives, etc.

Coins

Other Personal Items

DOMESTIC ITEMS

Furnishings: Flower pots, bedframes, fixtures, fireplace tools, etc.

Housewares and Appliances: Ceramics (bowls, cups, plates, etc.), glass (bottles, jars, tumblers, stoppers, salt shakers, etc.), utensils (knives, forks, spoons, etc.), "tin" cans

Cleaning and Maintenance: Thimble, sewing materials, pins, clothespins, etc.

Writing Materials: Wooden pencils, slate pencils, erasers, ink bottles, pen nibs, etc.

Medicine: Fever thermometer, medicine bottles, etc.

Other Household Items

ARCHITECTURE

Construction Materials: Bricks, molding, window glass, nails, screws, etc.

Building Hardware: Rain gutter hangers, hinges, door knobs, locks, etc.

Tools: Files, etc.

Plumbing Materials: Spigots, pipes, clamps, etc.

Electrical Materials: Wire, insulators, switches, bulbs, etc.

Other Architectural Items

AMMUNITION AND RELATED ITEMS

Cartridge Casings

Bullets

Shotgun Shells

Clips

Percussion Caps

OTHER CULTURAL MATERIALS

Automotive: Sparkplug, fuses, bulbs, lens covers, etc.

Animal Related: Horseshoes, tack, etc.

FAUNAL REMAINS

Shells

Bones: Food remains, other bones

UNIDENTIFIED CULTURAL MATERIALS

Metal

Glass

Plastic

Other Materials

As noted above, this classification system has been modified somewhat from that used by Sprague (1980-81), Saastamo (1971), Sanders (1983) and many others. The general functional taxonomy used in many historic archaeological projects in the Pacific Northwest includes a number of categories for activities found in specialized activity areas at Fort Stevens. In a domestic context, it is not expected that there will be evidence of logging, mining, manufacturing, farming, commercial entertainment, and other large-scale economic enterprises. What is expected, and what was actually found, was a core component of household items, including those listed in the outline above. This component is very similar to what may be found in other households at this time and of this degree of relative geographic isolation. Impinging on this domestic component, however, are artifacts related to the larger military context of the overall site. The material culture from this site, then, is to some extent similar to domestic settings archaeologically tested elsewhere in the Northwest. The discussion section of this report will address these similarities and differences in more detail.

PERSONAL ITEMS

Clothing

This category comprises the large number and great variety of buttons (of glass, rubber, composition material, bone, ivory, shell, metal and ceramic materials), garter clips and fasteners, suspender clips and fasteners, buckles, hooks, straps, clips, studs, cuff links, snaps, clothing grommets and rivets. The variety of materials represented, the morphological and stylistic diversity of the sample are unusual in an historic domestic context. Many of the clothing fasteners were undoubtedly civilian in nature, some are clearly of military origin, and some could be either. The following descriptive information suggests the variety of clothing fasteners recovered in the remains of the officers' quarters.

Glass Buttons

White glass	2-hole	Sew-through type	Diameter 11mm	N=3
White glass	4-hole	Sew-through type	Diameter 11mm	N=19
White glass	4-hole	Sew-through type	Diameter 17mm	N=6
White glass	4-hole	Sew-through type	Diameter 16mm	N=2
White glass	4-hole	Sew-through type	Diameter 14mm	N=2
White glass	4-hole	Sew-through type	Diameter 13mm	N=6

White glass	4-hole	Sew-through type	Diameter 9mm	N=1
White glass	2-hole	Sew-through type Oval countersink	Diameter 15mm	N=1
White glass	4-hole	Sew-through type Round countersink, piecrust rim design Thickness 5mm	Diameter 16mm	N=4
Cream-colored glass	4-hole	Sew-through type	Diameter 14mm	N=3
White glass	2-hole	Sew-through type Ring design	Diameter 13mm	N=1
White glass	4-hole	Sew-through type Decorated	Diameter 15mm	N=1
Black glass	Brass loop Thickness 4.5mm, floral design in pink		Diameter 17mm	N=1
Black glass	Brass loop, faceted edge Thickness 4mm		Diameter 16mm	N=1
White glass	Lacking wire loop Thickness 7mm, hemisphere		Diameter 14mm	N=1
White glass	Lacking wire loop Thickness 6mm, drop shape		Diameter 10mm	N=1

Rubber and Composition Buttons

Black rubber	2-hole Thickness 2mm, lenticular countersink	Sew-through type	Diameter 21mm	N=1
Brown rubber	2-hole Thickness 2mm, lenticular countersink	Sew-through type	Diameter 15mm	N=2
Black rubber	2-hole	Sew-through type	Diameter 14mm	N=1
Brown rubber	4-hole Thickness 2mm, depressed panel	Sew-through type	Diameter 15mm	N=1
Black rubber	2-hole Thickness 3mm, depressed panel "GOODYEAR"	Sew-through type	Diameter 15mm	N=1
Black comp.	2-hole	Sew-through type	Diameter 19mm	N=1
Brown comp.	4-hole Thickness 3mm	Sew-through type	Diameter 15mm	N=1

Bone, Ivory and Shell Buttons

White bone	4-hole Sew-through type Thickness 2mm, round countersink	Diameter 12mm	N=1
Cream bone	4-hole Sew-through type Thickness 4mm, raised rim	Diameter 18mm	N=1
Shell	2-hole Sew-through type Thickness 2mm, round countersink	Diameter 13mm	N=2
Shell	2-hole Sew-through type Thickness 1mm	Diameter 9-10mm	N=2
Shell	4-hole Sew-through type Thickness 2mm	Diameter 9-10mm	N=3
Shell	4-hole Sew-through type Thickness 2mm	Diameter 12mm	N=2
Shell	2-hole Sew-through type Thickness 2mm	Diameter 11mm	N=2
Ivory face	No loop Thickness 2mm	Diameter 13mm	N=1

Metal Buttons

White metal	"CARTER BRAND, DIAMOND" Thickness 3mm	Diameter 23mm	N=1
Steel, flat	2-hole Sew-through type	Diameter 17-18mm	N=6
Steel, flat	4-hole Sew-through type Thickness 2mm	Diameter 28-30mm	N=2
Steel, flat	Shanked Thickness 4mm	Diameter 9mm	N=1
Brass	4-hole Sew-through type Round countersink	Diameter 14mm	N=2
Brass	4-hole Sew-through type Round countersink	Diameter 17mm	N=1
Steel	4-hole Sew-through type Depressed panel, piecrust design Thickness 2mm	Diameter 17mm	N=6
Brass	2-hole Sew-through type 2-piece, "G&C" Thickness 2.5mm	Diameter 13mm	N=1

Steel	2-hole Sew-through type Thickness 5mm, 2-piece	Diameter 20mm	N=3
Steel	2-hole Sew-through type Thickness 4mm, 2-piece	Diameter 18mm	N=1
Steel	2-hole Sew-through type Thickness 4mm	Diameter 15mm	N=1
Steel	Hole on back, fabric-covered Thickness 7mm	Diameter 16mm	N=1
Steel	Flat with shank Pants button	Diameter 17-18mm	N=5
Steel	Flat, pants button Thickness 3mm	Diameter 20mm	N=1
Steel	Flat, pants button Thickness 2mm	Diameter 15mm	N=2
Brass	4-hole, sunken panel Thickness 1mm	Diameter 13mm	N=2
Brass	Flat, wire shank Thickness 1mm	Diameter 12mm	N=1
Brass	Flat, bar over hole Thickness 3mm, raised rim	Diameter 14mm	N=1
Brass	Flat, bar over hole Thickness 3mm, "B.D.& CO.***"	Diameter 16mm	N=1
Steel	Flat, bar over hole Thickness 3mm, raised rim	Diameter 17mm	N=1
Steel	2-piece, thickness 3mm Cross-bar design on face	Diameter 14mm	N=1
Steel	2-piece, wire loop Thickness 3mm	Diameter 13mm	N=1
Steel	2-piece, was fabric-covered Thickness 7mm, rounded	Diameter 12mm	N=2
Copper	4-hole Sew-through type Thickness 2mm, cross-hatched design	Diameter 15mm	N=1
Metal	2-hole Sew-through type Thickness 1.5mm, depressed panel	Diameter 7mm	N=1
Copper	Wire loop, sphere	Diameter 12mm	N=2

Brass	Wire loop, emblem design	Diameter 15mm	N=1
Brass	Anchor design, thickness 2mm	Diameter 20mm	N=1

Ceramic Buttons

White	4-hole Sew-through type Thickness 3mm, round countersink	Diameter 11mm	N=1
White	Wire loop	Diameter 8mm	N=1
White	4-hole Sew-through type Thickness 4mm, round countersink	Diameter 13mm	N=1
White	4-hole Sew-through type Thickness 4mm, round countersink	Diameter 16mm	N=1

Plastic Buttons

Black	No loop, thickness 5mm White paint dot design	Diameter 19mm	N=2
Red	2-hole Sew-through type Thickness 2mm, lenticular countersink	Diameter 18mm	N=1
Clear	No loop, thickness 6mm Cross-hatch design on face	Diameter 13mm	N=1

Military Insignia Buttons

'Great Seal'-style coat button Reverse "SCOVILL MF'G CO, WATERBURY"	Diameter 22mm	N=2
'Great Seal'-style coat button Reverse "SIGMUND EISNER RED BANK"	Diameter 15mm	N=2
'Great Seal'-style coat button Threaded stud on reverse	Diameter 15mm	N=1
Line Eagle Device with "A" in shield Reverse "SHANNON, MILL & CRANE N.Y."	Diameter 23mm	N=1
Line Eagle Device with "A" in shield Reverse "SUPERFINE GOLD PLATE W.B.CO."	Diameter 23mm	N=1
Line Eagle Device with "I" in shield	Diameter 16mm	N=1
General Service button with plain lined spade shield Reverse "...NT PHILA"	Diameter 21mm	N=1
General Service button with plain lined spade shield	Diameter 25mm	N=1

General Service button with plain lined spade shield	Reverse "SCOVILL MFG.CO WATERBURY"	Diameter 20mm	N=1
General Service button with plain lined spade shield	Reverse "WATERBURY BUTTON CO*"	Diameter 20mm	N=1
General Service button with plain lined spade shield	Reverse "SCOVILL EXTRA"	Diameter 14mm	N=1
General Service button with plain lined spade shield	Reverse "EXTRA QUALITY"	Diameter 15mm	N=1
General Service button with plain lined spade shield	Reverse "SCOVILL & CO. EXTRA"	Diameter 15mm	N=2
General Service button with plain lined spade shield	Reverse "M.N.***N.Y.***"	Diameter 16mm	N=1
General Service button with plain lined spade shield	Reverse "HORSTMANN PHILAD"	Diameter 15mm	N=1

Garters and Clips

Garter Clip	"VELVET GRIP/BOSTON GARTER/12.31.95 & _.07.04/PAT.4.30.95/BOSTON GARTER	N=3
Garter Clip	"IDEAL"	N=1
Garter Clip	"ELLIS MFG.CO. SOLE MAKERS/1873/...MASS, PAT FEB 18 1873"	N=1
Garter Clip	"PAT'D APR 1 02"	N=2
Garter Clip	"BOSTON GARTER/PAT 7.6.97"	N=2
Garter Clip	"CRANDALL WEDGE"	N=1
Garter Clip	Fragments, plated brass	N=6
Suspender Fastener	Plated brass, "PRESIDENT"	N=3
Suspender Fastener	Plated brass "PRESIDENT/SHIRLEY MAKE"	N=1
Suspender Fastener	Plated brass, "PAT.187_"	N=1
Suspender Fastener	Plated brass, fragments	N=3
Suspender Clip	Plated brass, "PAT APL'D FOR"	N=1
Clothing Strap Adjuster	Plated brass, "FLEXO"	N=2

Clothing Clip	"EMERSON"	N=1
Hook, wire, copper	Fragments	N=4
Buckle	Iron, width 24mm, Length 20mm	N=1
Buckle	Iron, brass clasp	N=1
Buckle	Iron, fragment, width 37mm	N=1
Belt end for belt	Width 24mm	N=1

Cuff Links and Studs

Stud	Brass, length 11.5mm	Diameter 9mm	N=1
Stud	Brass, prong fragment		N=1
Stud	Brass, face with shell disk	Diameter 14mm	N=2
Shell disk only			N=1
Stud	Glass, face thickness 2mm	Diameter 9mm	N=2
Cuff link	Brass, thickness 5mm	Diameter 18mm	N=1
Cuff link	Brass, back only, length 15mm Thickness 3mm		N=1
Cuff link	Brass, cloisonne floral design	Diameter 15mm	N=1
Snap	Flat, thickness 4mm	Diameter 15mm	N=3

Grommets and Rivets

Grommet	Brass, thickness 4mm, outside diameter 17mm Inside diameter 7mm	N=2
Grommet	Brass, thickness 3mm, outside diameter 9-10mm Inside diameter 5mm	N=3
Grommet	Brass, outside diameter 6mm Inside diameter 3mm	N=1
Grommet	Brass, thickness 1.5mm Outside diameter 5mm	N=1
Rivet	Copper, with burr, length 6mm Diameter 8mm	N=4

Many of the buttons were found in one 2x2 meter excavation unit, but many others were found dispersed throughout the excavated area. If the buttons were part of a collection for repair and replacement purposes (a button box), they probably would have been more concentrated in their distribution unless a good deal more disturbance occurred than is at present suspected.

The civilian buttons and other clothing fasteners are generally typical of those found at late 19th and early 20th century sites in the west, including Champoeg (Speulda 1988), Kanaka Village (Chance and Chance 1976), the town of Silcott (Adams, Gaw and Leonhardy 1975), the Stauffer-Will Farmstead (Minor, Jacobs and Tilton 1981) and other non-military domestic contexts. The white glass, prosser ceramic and flat metal buttons were used for utilitarian purposes on shirts, blouses, dresses, undergarments and pants.

The military buttons were constructed in a three-piece shell manufacturing process (Sander's 1823 patent), with a convex face and a shank brazed on the back. The two classes of buttons arranged by size include cuff, jacket or vest size (14-16mm diameter) and the larger coat size, ranging from 20-25mm in diameter. Three distinct styles of eagle device were noted. The great seal type is decorated in what is referred to in a 1912 military supplies catalog as "U.S. Coat of Arms" design (M.C. Lilley and Company 1912). The great seal insignia consists of an eagle device with lined spade shield on the breast. This type of military button was adopted by the Army for use beginning in 1902 and is still the regulation button (Albert 1976). The second decorative class of buttons is the general service button, with an eagle facing to its right with a lined shield on its breast. This button was the regulation style issued from 1855 until the introduction of the great seal button in 1902 (Brinckerhoff 1972:5). The third class of military buttons contain the line eagle device, similar to the general service design, but with a letter inside the shield on the eagle's breast, representing one or another of the branches of the Army. The design was adopted by the military for both officers and enlisted men as early as 1821, but its use was restricted to officers in 1854 (Brinckerhoff 1972:3-4). The examples of the line eagle device at the officers' quarters contain, within the shield, an "I" for infantry or an "A" for artillery. Similar 19th century line eagle buttons were used to distinguish cavalry, dragoons, rifles and veteran volunteers, but no insignia from these branches were found. Both artillery and infantry units had been stationed at the fort during the course of its life as a military outpost.

Backmarks on the uniform buttons provide some information on the manufacturer. Several of the buttons were marked "SCOVILL MF'G CO. WATERBURY", a mark used by the company of that name in Waterbury, Connecticut, from 1850-1960 (Albert 1976). "SHANNON, MILL & CRANE N.Y." marks were also found at Fort Bowie, and the manufacturer was attributed by Herskovitz (1978:41) to the period 1868-1901. The "WATERBURY BUTTON CO*" mark is post-1849 (Albert

1976:464), while "HORSTMANN PHILAD" was manufactured during the second half of the 19th century (Herskovitz 1978:40). "EXTRA QUALITY" backmarks were also found at the 1859-1874 military site in San Juan (Masich 1979:43). The great seal style coat button marked "SIGMUND EISNER/RED BANK" is very similar to one found at Fort Vancouver (Thomas and Hibbs 1984:237). Figure 14 shows the vertical distribution of buttons and Figure 15 the horizontal distribution of buttons.

Many of the utilitarian clips, clasps and fasteners contain patent dates, generally from the last quarter of the 19th century, and trademarks. The button marked "CARTER" is probably from Carter's Underwear, manufactured by The William Carter Company of Needham Heights, Massachusetts, as early as 1865 (BNFI 1947:4), while the "PRESIDENT" and "PRESIDENT/SHIRLEY MAKE" suspenders were manufactured by the President Suspender Company of Shirley, Massachusetts. This company began operations in 1894 (BNFI 1947:13). Examples of similar clothing hardware have been found at the farming community of Silcott and at American Camp in the San Juans (Figures 16 and 17).

Other clothing items include grommets or rivets, some of which were for footwear. Some of the brass grommets are rather large (17mm diameter), and may have had a different function, such as tents, tarps or ponchos. Other brass grommets, with an outside diameter or 5 to 10mm, were more likely used for clothing. One of these, in fact, has a piece of leather attached. The three rivets found, with burrs attached, had an

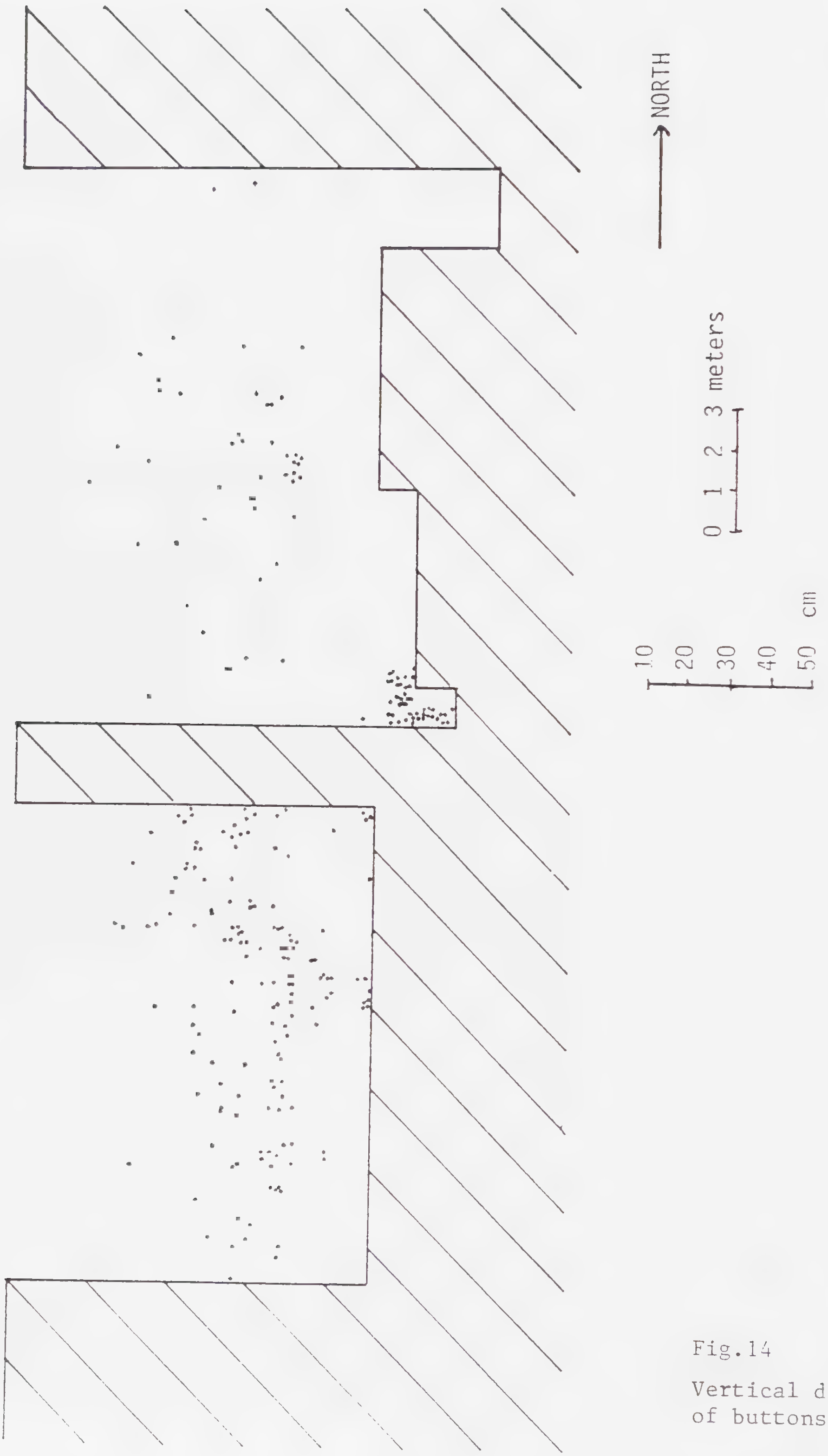


Fig.14

Vertical distribution of buttons

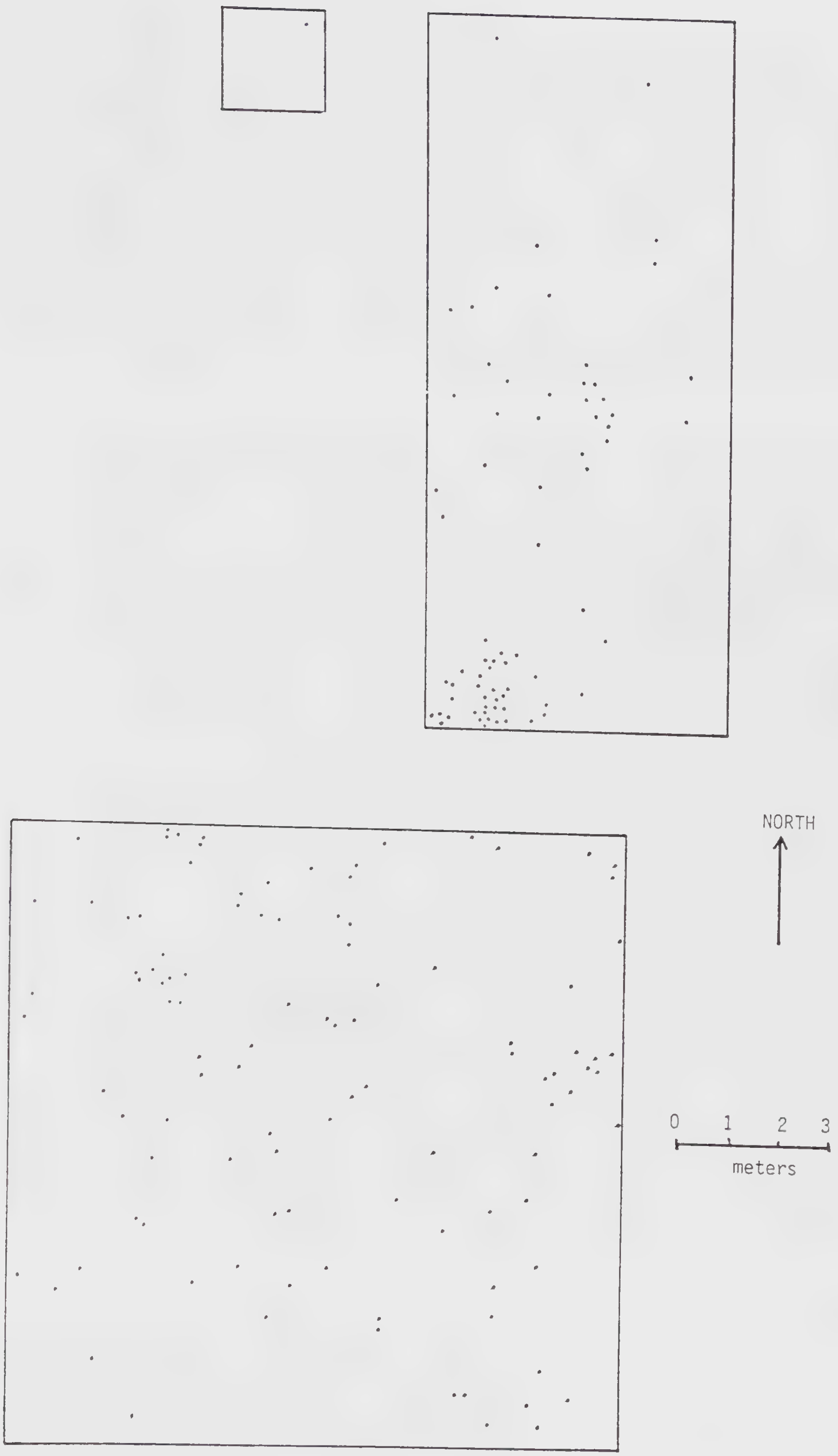


Fig.15

Horizontal distribution of buttons

head diameter of about 7mm and length of 6mm. Also found were a sheet of tanned leather about 1mm thick, and 75x59mm in surface dimension, and a small scrap of green twill weave cloth, probably of military origin. Several leather footwear fragments were found at the site, including tongues, soles and portions of uppers. One leather glove was also recovered.

Adornment

The majority of the items in this class of artifacts were glass beads, the greatest number of which are cut and ground tube beads, faceted, of dark blue. Five of these were 8mm in length and diameter, four were 7mm in length and 8mm in diameter, two with 8mm diameter and 12.5mm length, and one with 5mm diameter and 4.5mm length. Two of the dark blue cut and ground tube glass beads have a concentric layer of lighter blue surrounding the hole, diameter 8mm and 6-7mm length. A light blue "seed bead" 1mm in length and 1.8mm in diameter, a yellow glass bead with a diameter of 12mm, and a pink plastic bead of 9mm complete the assortment. There were also two faceted black glass pointed ornaments, which had evidently been covered with gold paint, had brass wire loops set in the rounded end for attachment. A brass decorative pin with a clasp for a jewel (which was missing) with a length of 48mm was also recovered in the site.

Body Ritual and Grooming

The artifacts in this category are those items used for personal grooming and hygiene, primarily in this collection for hair care. Combs and brushes, hair set combs, steel hairpins,

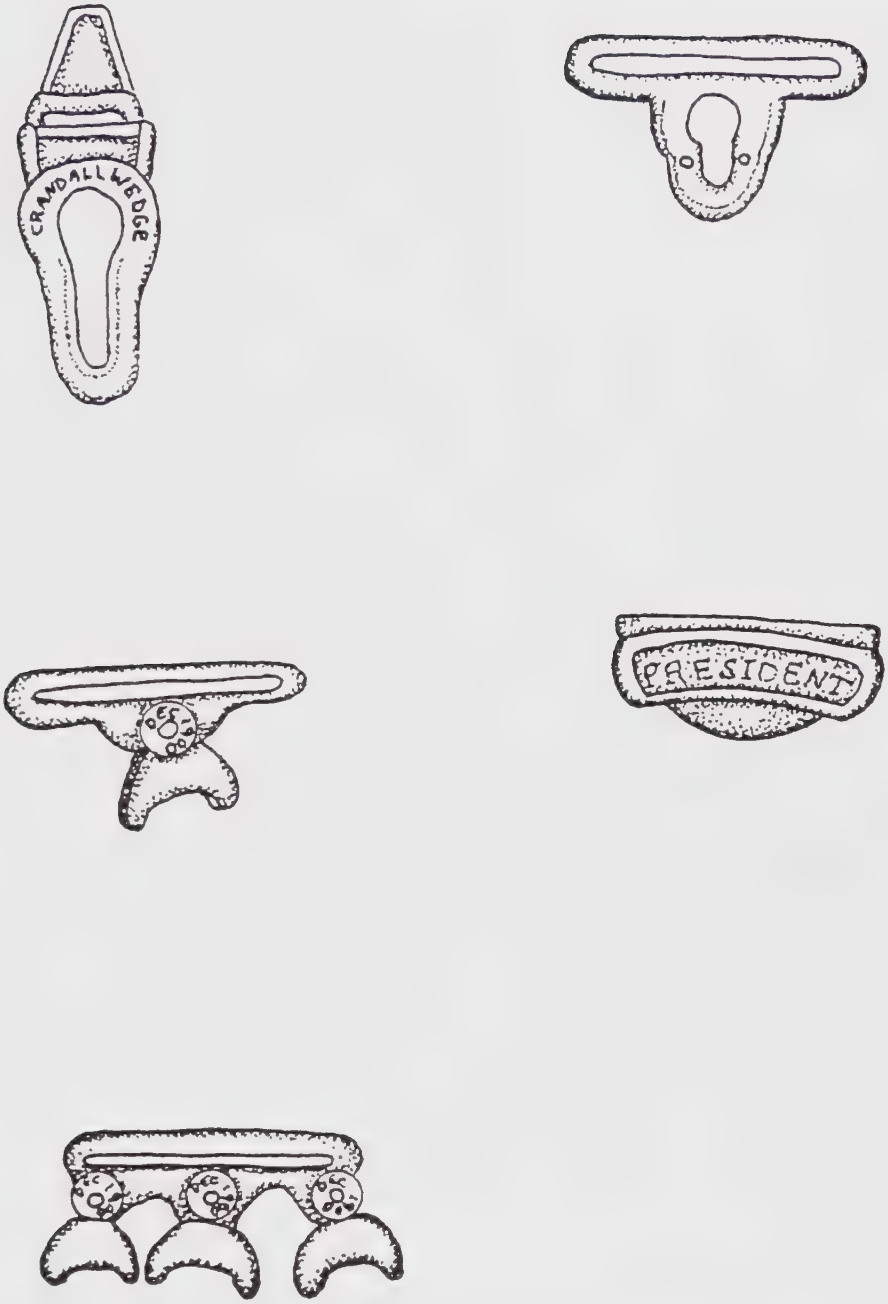


Fig.16

Clothing Fasteners

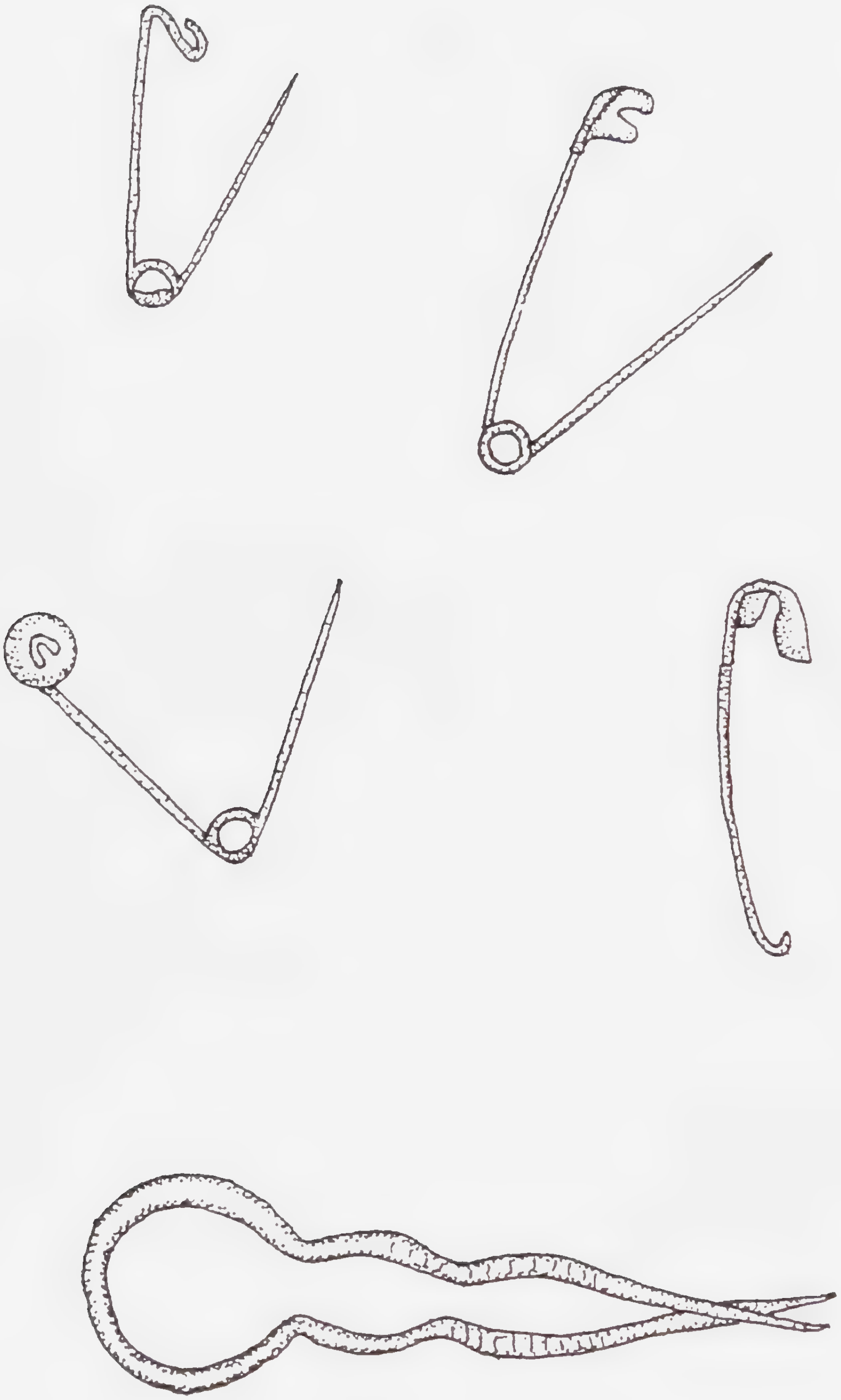


Fig.17
Safety pins and imitation tortoise shell hairpins

hair curlers and barrettes comprise the bulk of the grooming equipment. A number of pocket or purse combs were found, along with several comb teeth. A minimum of eight combs were present, of black rubber, black composition material, and black, red and light pink plastic. One black pocket comb had the inscription "SUPERIOR" molded on one side and "MADE IN U.S.A." on the other. A black rubber pocket comb, length 127mm, had "I.R.COMB CO's UNBREAKABLE GOODYEAR 1851", with the "UNBREAKABLE" in connected script. The "GOODYEAR 1851" refers to the patent received by Nelson Goodyear in 1851 for an improvement in the manufacture of India rubber (Luscomb 1967:91). The light pink plastic pocket comb read "FOSTA." with "U.S.A." enclosed by a circle.

There were also three fragments of hair set combs, a pink plastic barrette fragment, two steel hair pins (length 57mm, wire diameter 1mm), an imitation tortoise shell hair pin (length 97mm), and an aluminum curler clip fragment.

Dental hygiene was represented by a metal toothpaste tube fragment and an ivory handle which may have been for a toothbrush.

Shaving equipment included the head of a safety razor, and a "TREE BRAND" straight razor manufactured by the Herman Bokker Company (Figure 30B).

A fragment of the base of an apothecary jar was found. This shard, with a wall thickness of 5mm was of ironstone. Such jars were usually used as containers for toothpaste, cold cream, hair pomade and medicinal ointments. The original contents of this example are unknown.

Finally, a lipstick tube was found, with a rising-base inner cylinder to lift the lipstick past the rim. The logo on the base reads "POND'S EXTRACT CO. N.Y./MADE IN U.S.A.". This company was founded about 1913 in New York City (PPAA 1934:70). (Figure 18 illustrates the distribution of grooming items.)

Medical and Health

The artifacts in this category represent home health care, and include medicine bottles and fragments of a fever thermometer. There were two complete medicine bottles found, identified by a cork-stoppered "prescription" finish and one of these had fragments of a paper label attached. The label has a dotted line and beneath that "SU..EON, U.S.A.". The label had been affixed backwards, so the writing is in reverse (Figure 19).

Five medicine bottle necks were also recovered, all of clear glass and all with patent or extract lips. These may have been patent medicine bottles. Each of the bottles and necks has seam lines running up the neck to the finish.

Two pieces of a fever thermometer were found. These are of clear glass, with a triangular cross-section. The pieces together are 56mm in length, have a diameter or 5mm, and engraved graduations. One piece has engraved "110" and "U.S.A." on the side opposite the graduation markings.

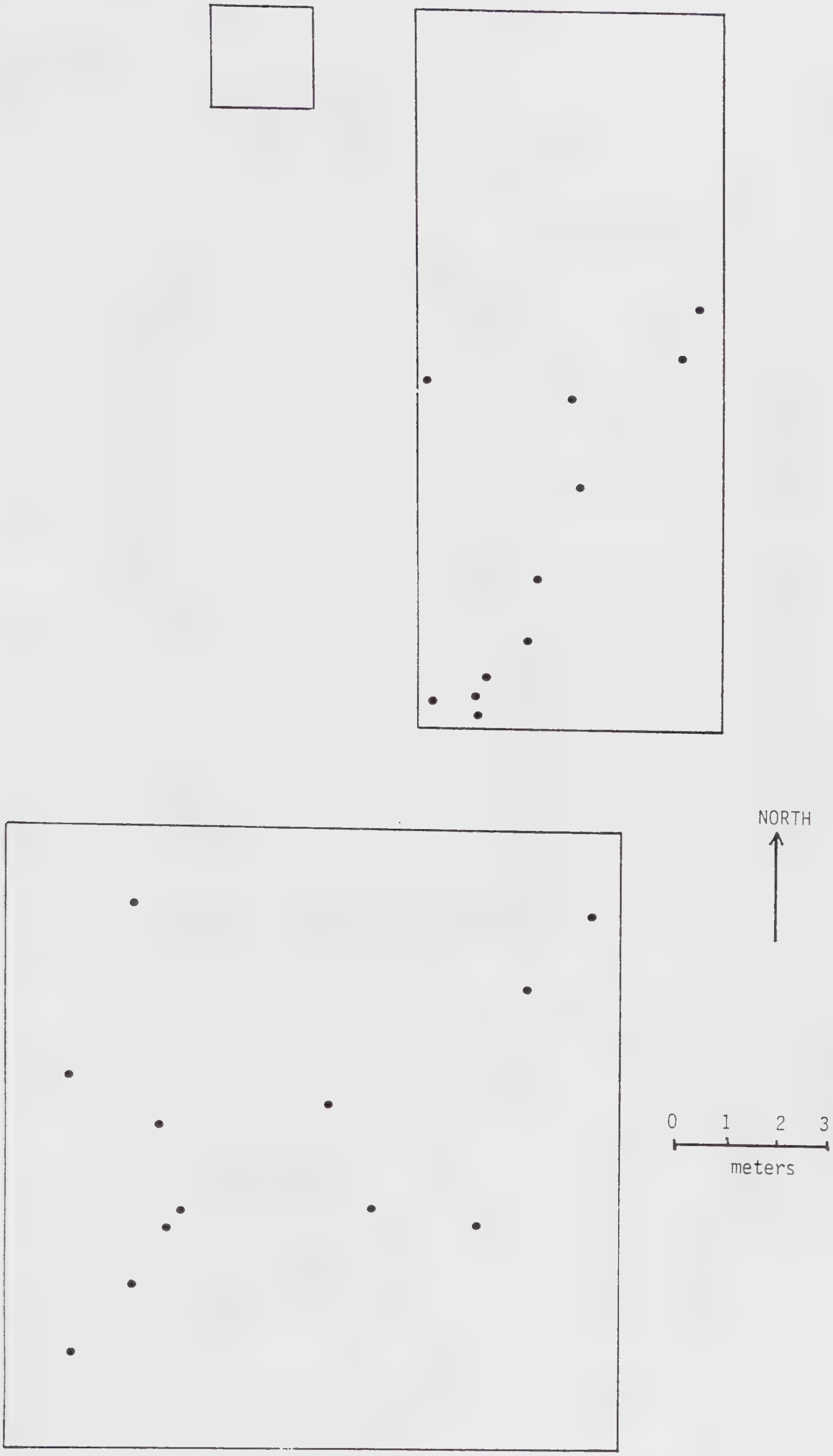


Fig.18

Distribution of grooming items

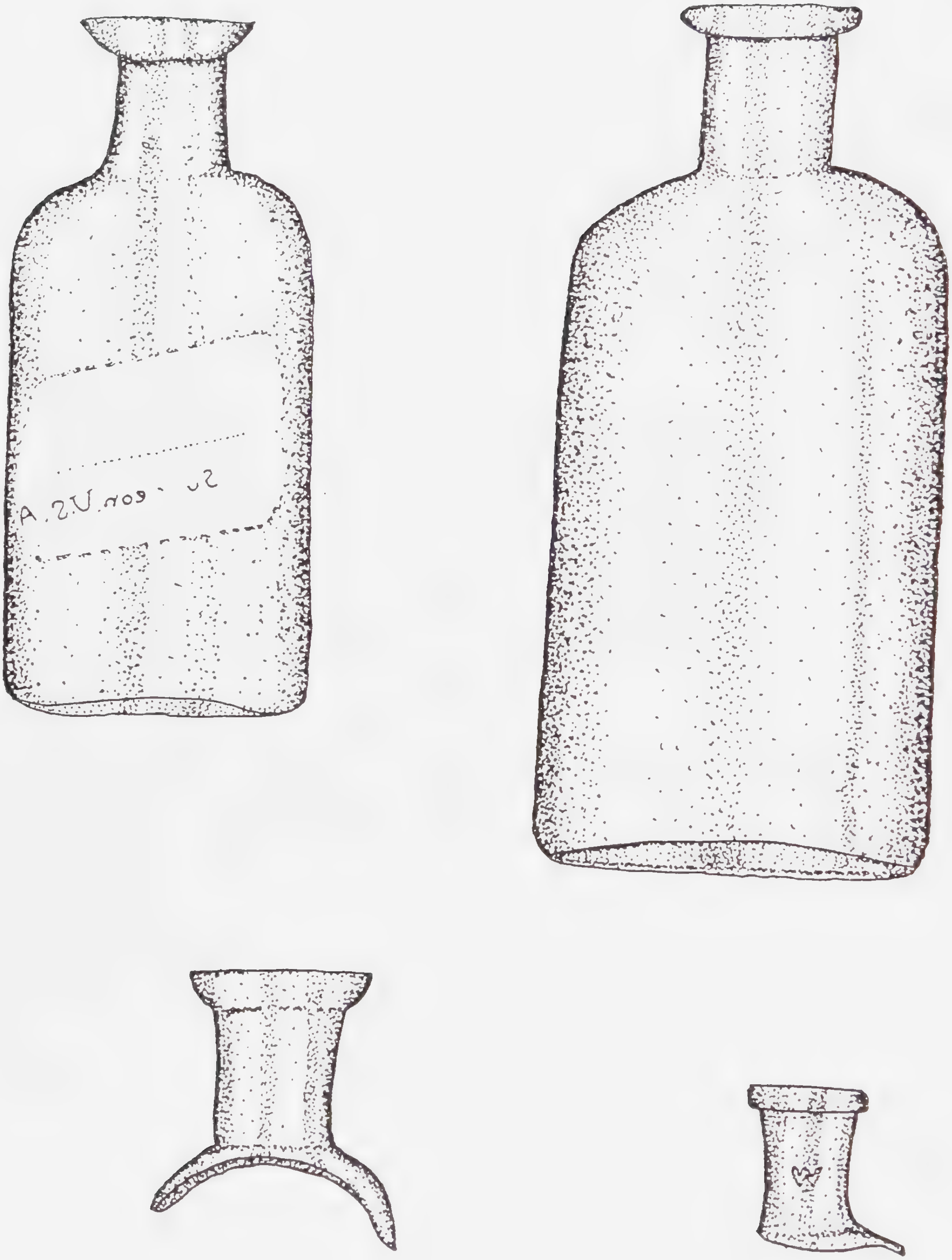


Fig.19

Medicine bottles of clear glass

Indulgences

The category of indulgences, or vices, includes those artifacts related to the consumption of tobacco, non-medicinal alcohol and, perhaps, opium. A common artifact at historic sites is the clay pipe, manufactured of white kaolin, relatively inexpensive, breakable and, in many instances, datable. White clay pipes at Fort Stevens are represented by fragments of bowls, spurs and stems; no complete pipes were found, nor were there pipes of briar or porcelain.

The 25 clay pipestems found at the site range in length from 10mm to 64mm, with a mean value of 36mm and standard deviation of 15mm. It was possible to cross-mend many fragments to arrive at the figure of 25, which probably represents 20 different pipes. One cross-mended stem was assembled from pieces found 2.30 meters apart from each other, indicating to some degree the extent of disturbance of the deposits. Several of the stems bear an impressed manufacturer's mark; the most common is "McDOUGALL" on one side and "GLASGOW" opposite. Another contains the same inscriptions within a braided frame. These were probably made by the firm of Duncan McDougall and Company in Glasgow, Scotland, which manufactured such pipes from as early as 1847 until 1968 (Oswald 1975:205). Similar stems were found in the Army area of Fort Vancouver, ranging in age from 1853 for the braided McDougall to about 1880 (Chance and Chance 1976:172), and at the sites in American Camp in the San Juans (Ferguson 1976:77) which date from the Fort's establishment in 1859 until the end of military occupation in 1872.

Two white clay pipestems bear an inscription impressed perpendicular to the long axis of the stem, reading "DUMERIL/LEURS/ST OMER". Similar pipestem markings have also been noted at American Camp (Ferguson 1976:62) and Fort Vancouver in an 1862-1875 context (Chance and Chance 1976:173). Yet other examples were found in Old Sacramento, California, in the remains of a sundries store which was demolished by fire in 1852 (Humphrey 1969:12-33). These pipes were manufactured by the Dumeril Company in the French city of St.Omer, in the Department of Pas-de-Calais in northern France. This village was a center of clay pipe production for the export trade to the United States. The diameters of the clay pipestem bores were either 5/64 inches (N=18) or 4/64 inches (N=7), with 72% of the sample being the large bore, presumably of late 19th century manufacture. Some of the stems were heavily brown-stained (not varnished) while others were virtually unsmoked (Figure 20).

A few brown clay pipe bowls were recovered, but most were of white clay, matching the numerous stems. The 16 bowl fragments, some with stems or fragments of shank, probably represent at least nine different pipe bowls, as determined by manufacturer's marks and stylistic attributes. One bowl has a clear "TD" stamped on the near face of the bowl (the side toward the smoker). This mark has been used by many clay pipe makers in a

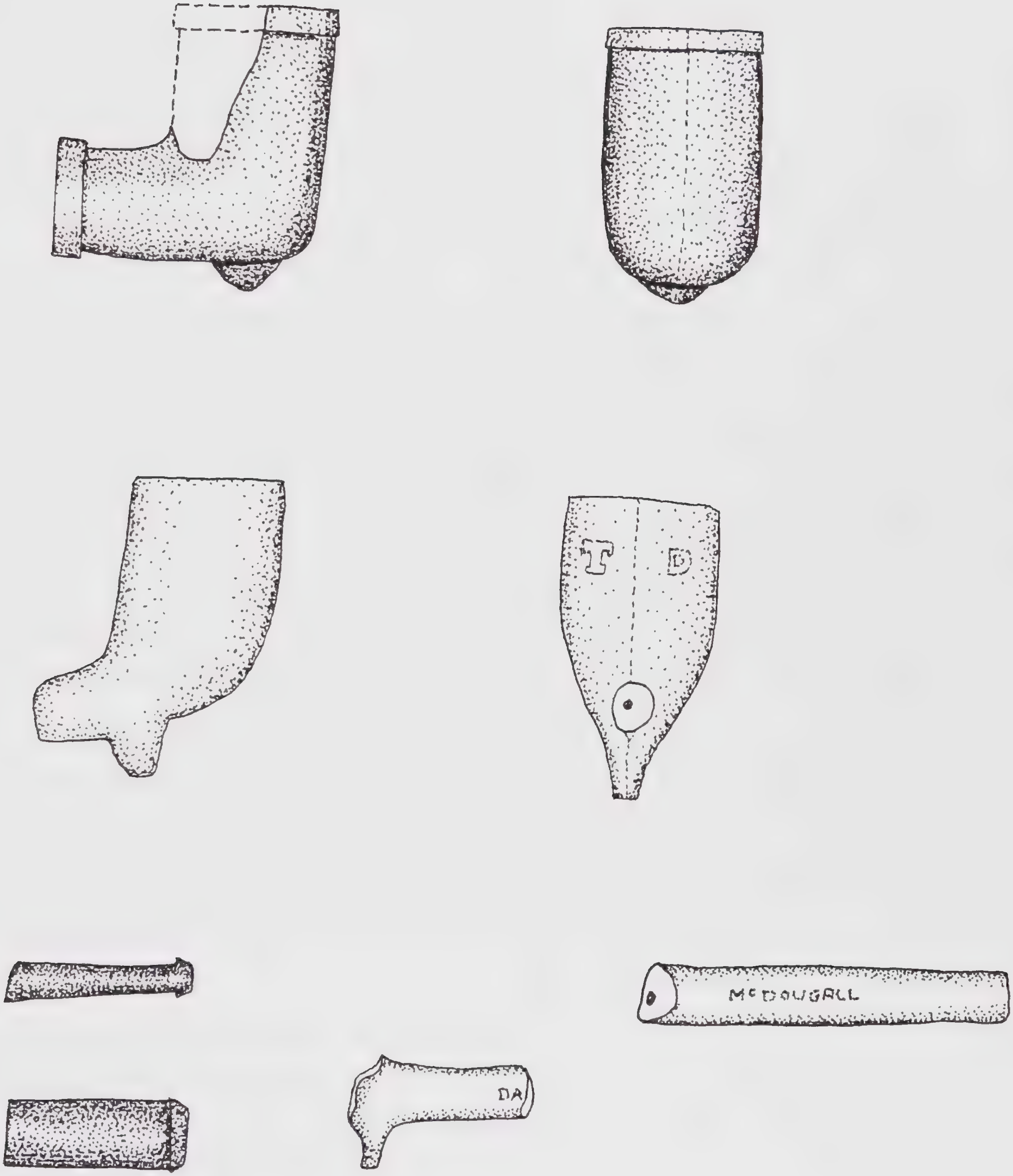


Fig.20

Clay pipe bowls and stems, and black rubber pipe bit (lower left) number of countries, and has been found at Fort Vancouver in an early American context, as well as other sites in the Northwest. Another "TD" bowl was found, this one of very poor workmanship, with poor quality stamp of the initials. It appears to have been smoked only once or twice. As Chance and Chance note (1976:178) from Fort Vancouver, around 1870 the quality and variety of clay pipes declined at the Fort. They note crude "TD" pipes are heavy, thick, and with finishes marked by cracks and flaws. Iain C. Walker, in a study on TD pipes, notes (1966:86) "In the case of the initials TD not only is it difficult to find information on the possible original makers with these initials but the initials themselves eventually became a trademark used by pipemakers to denote certain types of pipe." Other bowl fragments have a cockle design, one has an "S" in relief on the side of the stem and one has an impressed "TOLLNER/SEPT 1 '68".

Other tobacco-related items include a yellow pipestem, an amber-colored rectangular cross-section pipestem, and two hard rubber or composition pipestems. An attractive brass match safe, with a grapeleaf design, measured 77mm long, 39mm wide and 12mm thick. Figure 21 shows the distribution of smoking materials. Figure 22 is the match safe.

A small metal lid was found which was marked "DEVOE". This may have been for a snuff container. DeVoe was a tradename for snuff manufactured by the United States Tobacco Company of New York beginning in 1835 (BNFI 1947:1).

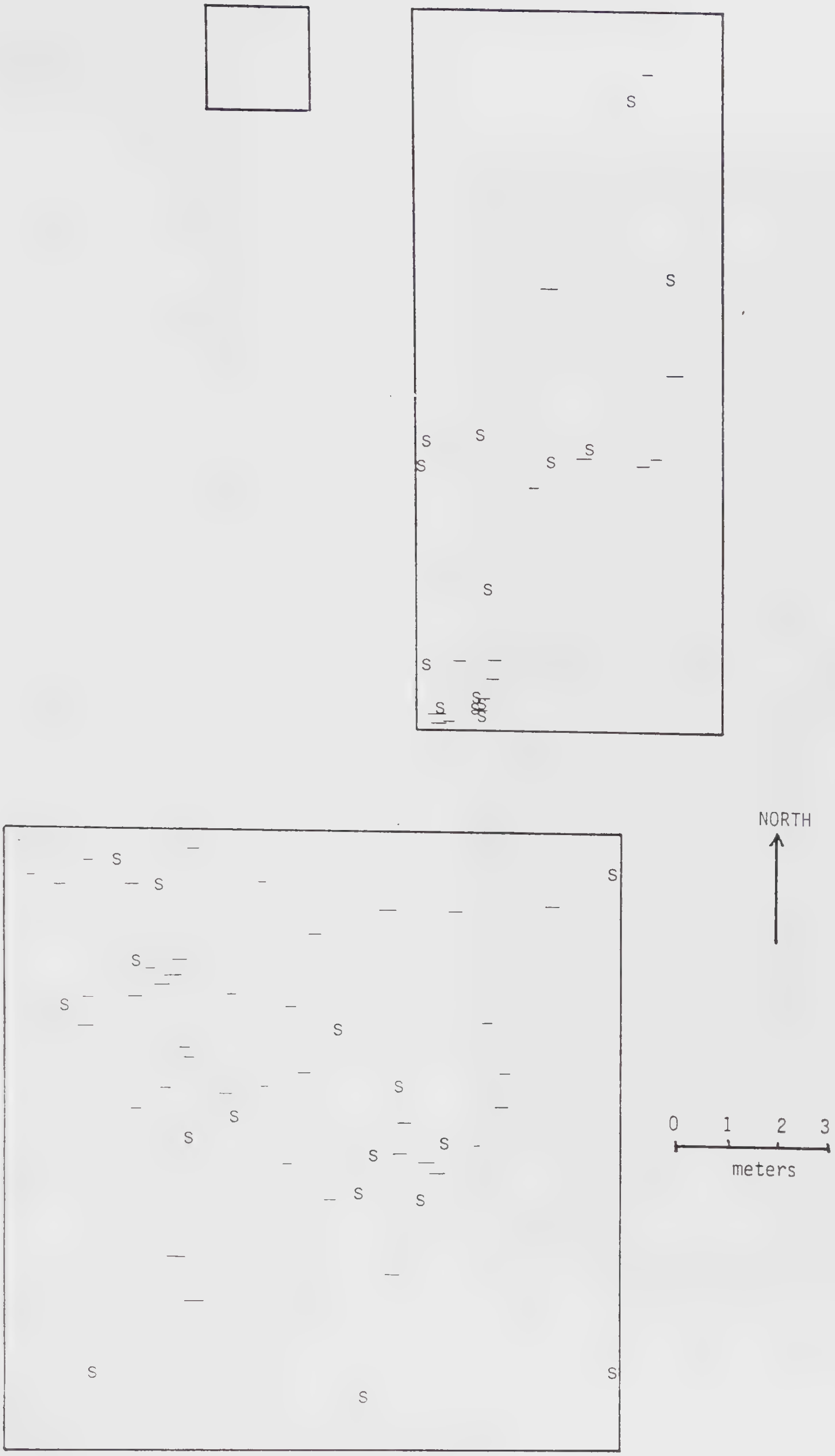


Fig.21

Distribution of smoking materials (-) and writing implements (s)

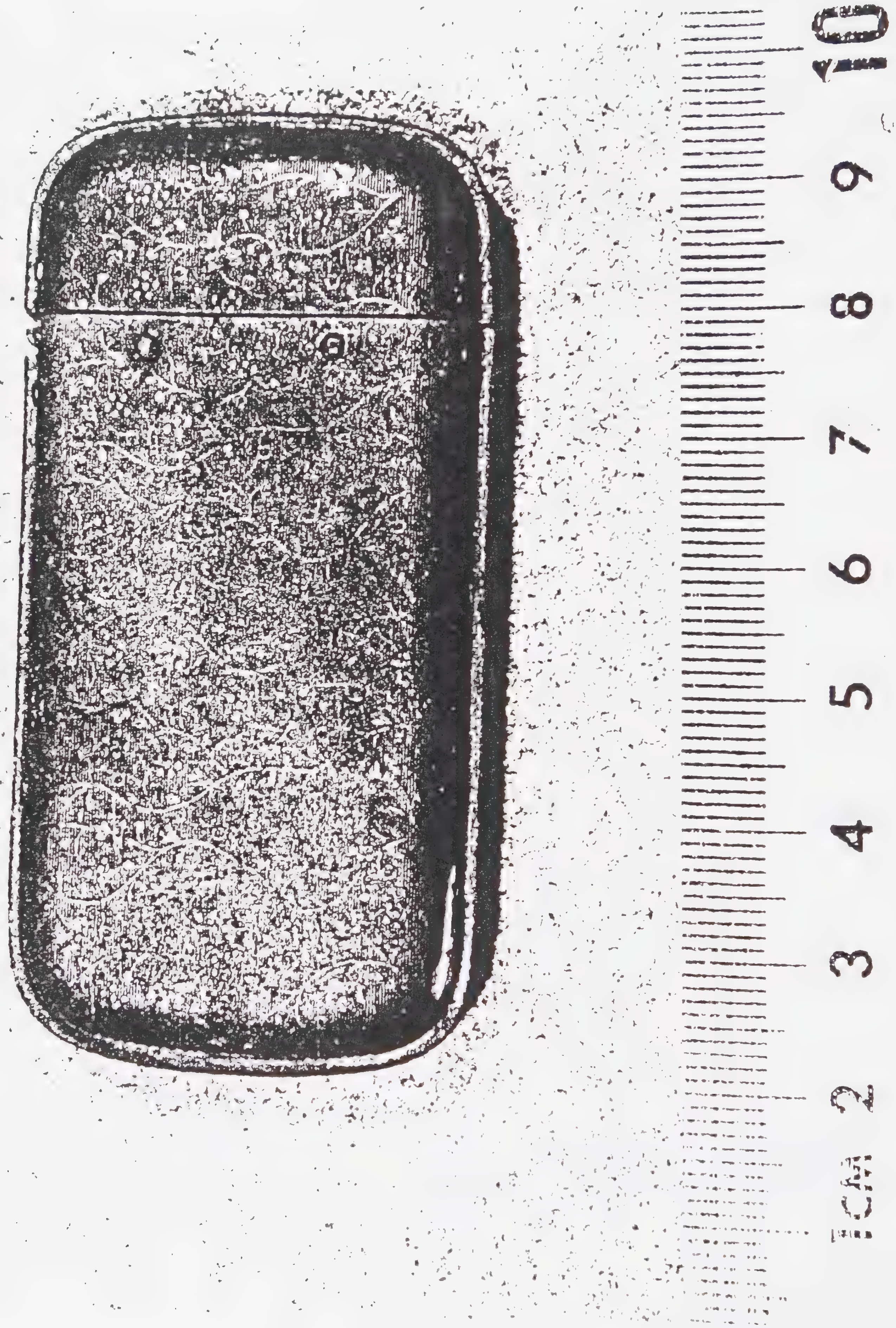


Fig.22

Brass match safe

Fragments of three brass opium boxes were also found. The lids of these boxes have two types of markings. The first, a series of Chinese characters, is stamped into the lid. The second type of marking consists of the remains of gummed paper duty stamps (Figure 23). Smoking opium was no longer legally imported into the United States after April 1, 1909 (Alfano 1974:180-6), so these containers were imported prior to that date. They may reflect contacts between the military personnel stationed at the Fort and the large and thriving Chinese population of Astoria. Although the boxes definitely pre-date 1909, they may have been saved for years because of their exotic connotations, or used as storage containers. Similar boxes have been found at Fort Laramie in Arizona (Herskovitz 1978), Cabinet Landing in Idaho (Landreth, Boreson and Condon 1985), the Siskiyous in southern Oregon (LaLande 1982), Mt.Hope in Eureka County, Nevada (Zeier 1985:50) dating from the 1870s to the 1910s, and recently at a Chinese mining site in south central Idaho in the Snake River Canyon (James 1990) and a number of other sites in the Northwest where there were contacts with a Chinese population. A history of Chinese in Clatsop County, emphasizing their work in the salmon canning industry (Friday 1982) and an annotated bibliography of references to overseas Chinese (Ehrenreich, Wegars, Horn and Smith 1984) provide more information on relationships between Chinese immigrants and Euro-Americans in the region. No other evidence of Chinese material

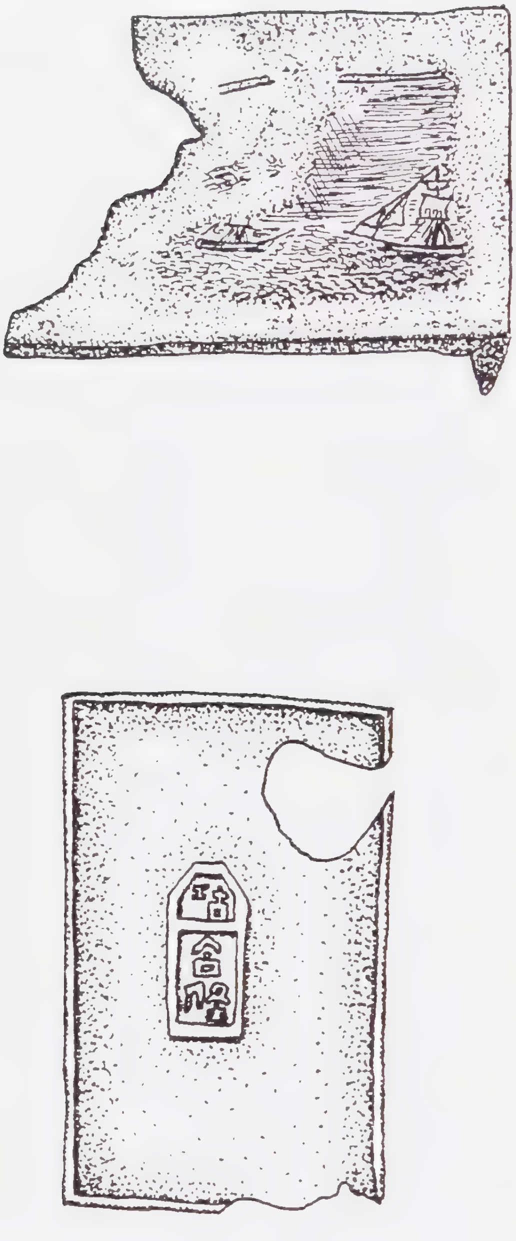


Fig.23
Brass opium boxes; upper shows remains of gummed duty stamp

culture was found at the site, nor was there any of the paraphernalia associated with the smoking of opium.

Fragments of a number of alcoholic beverage bottles were recovered at the officers' residence, ranging in color from clear to aqua, light green, green, dark olive and brown. Fragments of at least four dark green bottles are present; the champagne finish of the bottle mouths and two examples of a deep kick-up suggest that these bottle contained sparkling wine. No complete bottles of this type were found, so no measurements of bottle height or base width are possible. The inside lip diameters in 18mm, and the ring height is 9mm. The thickness of the glass in the neck is 5mm. Mold seams are not visible on any of the neck fragments. Two slightly smaller versions of the same finish, one in dark green and one in dark olive, were also found. The latter contains the remains of a cork stopper. The glass thickness of the two necks measures 4mm and 3mm respectively. A light green neck fragment with the same finish and much thinner glass was also recovered. The mouth inside diameter is estimated to be 18mm, with the height of the irregular ring approximately 9mm. The glass thickness at the shoulder is 2mm.

One pale green glass bottle base has a deep kick-up. The base shape is an irregular oval, 51-47mm across. The kick-up is 51mm high and body glass thickness is 3-4mm. A bottle neck of the same pale green color has a crown finish and would have held beer or soda pop. The only dark aqua bottle neck found has mold seam lines up to the applied cork lip. Mouth interior diameter is 20mm, neck length to the ring is 82mm, and shoulder glass thickness ranges from 3 to 4mm. There is evidence of a ring just below the shoulder.

There were fragments of four brown bottles found, three with a cork lip and one with an intact crown cap. The lips for corks have rings below the lip finishes, and a neck which swells outward then contracts before meeting the shoulder ("bulb neck"). One has a mold seam extending past the ring into the finish, and the example with the crown cap has a mold seam extending to the lip. These bottles, with the exception of that with the crown cap, are presumed to have contained whiskey. An intact brown whiskey bottle was one of the very few complete bottles found. It has a length of 280mm, a diameter of 79mm, cork finish length of 22mm, and a mouth interior diameter of 18mm. The base has in relief "P C G W" and mold seam lines extending to the bottom of the finish. Adhesive remains from paper labels on the neck, finish and a rectangular area on the body (Figures 24-26).

Five clear glass flat pocket flasks were found; two of these were of the oval shape referred to as "Pumpkin Seed Flasks" which were stoppered with corks. Both have a round collar immediately below a v-shaped lip ("double ring finish"), mold seam lines extending to the lip and, on the base, a five-pointed star in relief. The larger of the two oval flasks is 161mm in length (base to lip), approximately 105mm in width, and the thickness is 36mm. Body glass is of irregular thickness, from 1-3mm. A short neck leads to a double-bead finish. The other oval

"Pumpkin Seed" flask is smaller, with a length of 140mm, a width of 95mm and a thickness of about 27mm. Because it is unbroken, glass thickness measurements are unavailable (Figure 27).

The other three clear glass flasks have metal screw-on lids, and are therefore more recent in time. The two more-nearly intact measure 160mm and 170mm in length (with cap), approximately 78mm wide, and 25mm thick. Body glass is consistently about 2mm thick. These two have two rows of knurling on the metal lids for grip and a circular tan cork liner inside the cap. The third example is less complete but of the same design. The metal cap has only a single line of knurling. Each of the three has a ring below the continuous thread.

One aqua bottle base is marked "AB/6", with the letters together and slanted. The dipthong "AB" is identified by Toulouse (1971:26-7) as the American Bottle Company of Chicago, Illinois. Similar basemarks have been found at the town of Silcott (Adams, Gaw and Leonhardy 1975:117) and the Simpson Springs station in western Utah (Berge 1980:136-139). This bottle base was identified as from a beer bottle.

Pastimes and Recreation

This category includes a number of artifacts whose function is readily definable and whose manufacture reflects that function. Items which were designed and built for other uses, but which were casually used for entertainment, are excluded. Mutilated bullets, for example, may represent casual recreational

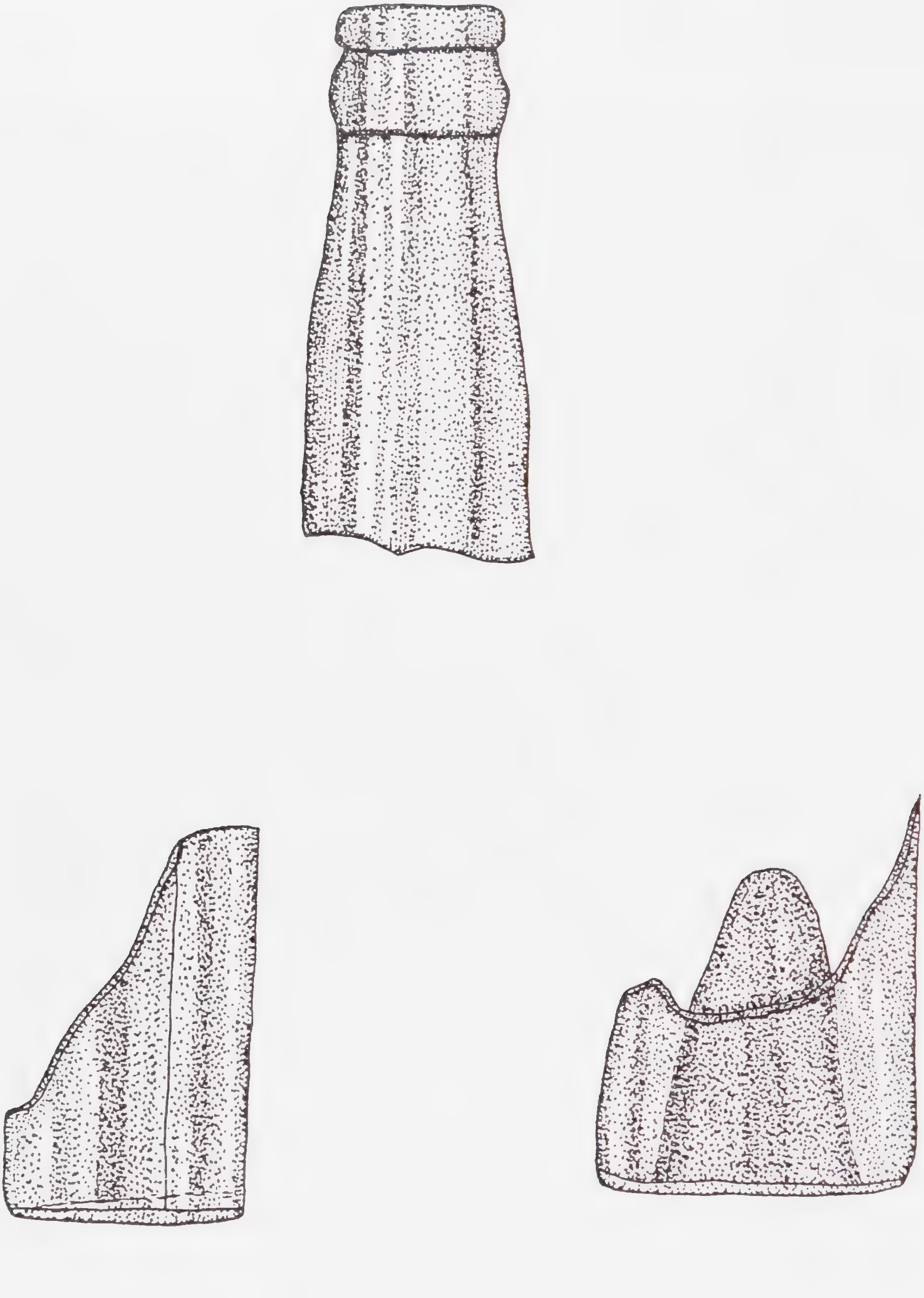


Fig.24

Green glass bottle fragments

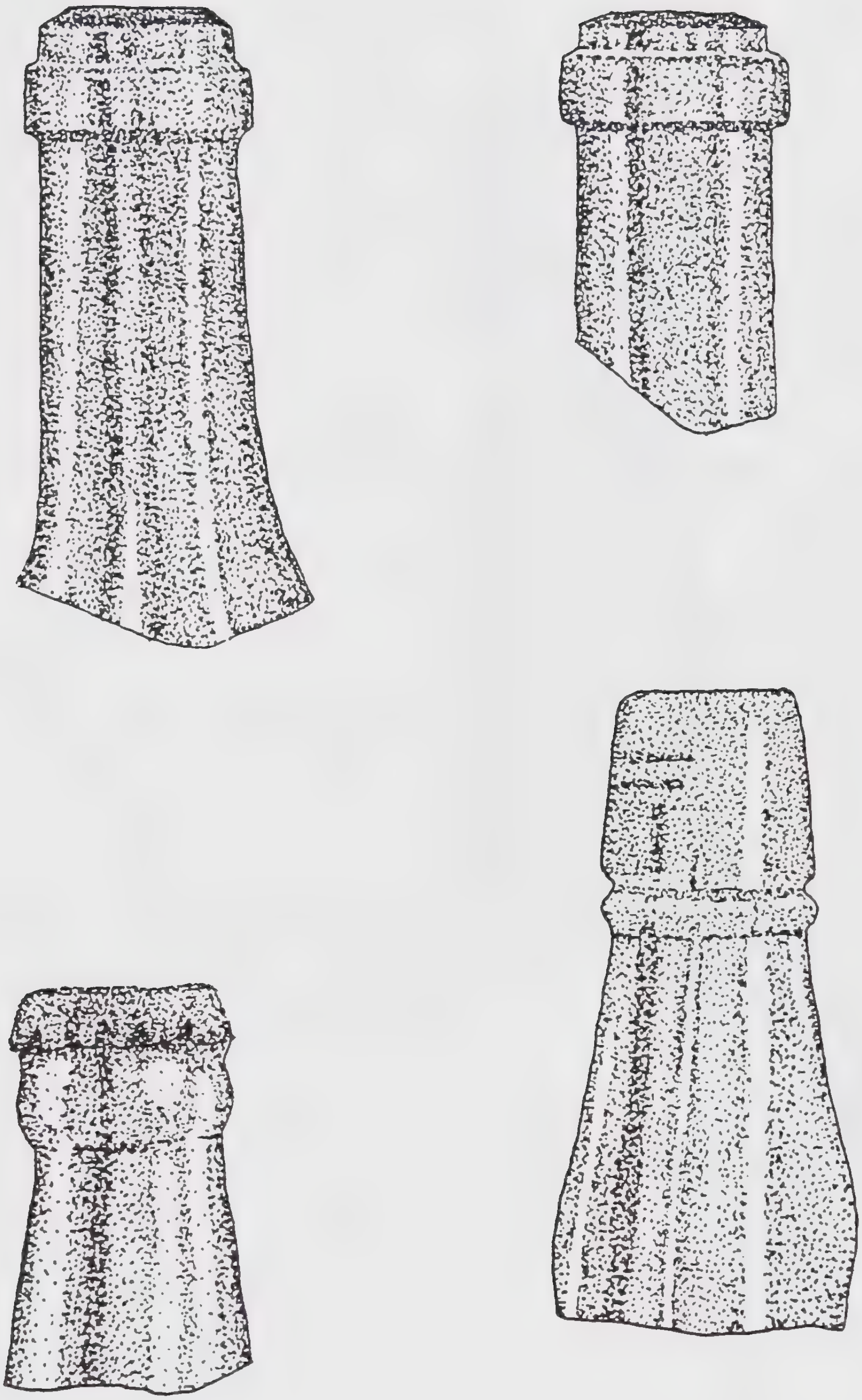


Fig.25

Glass bottle finishes

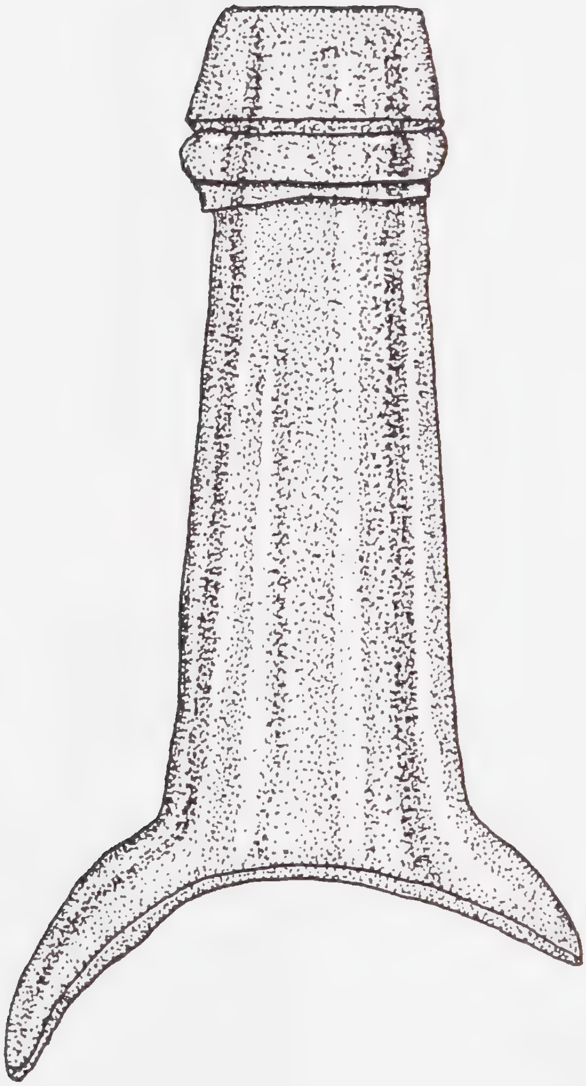


Fig.26

Green glass bottle neck

activities. At the American Camp on San Juan Island (1859-1874) a lead bullet was found which had been flattened into a disk and then inscribed with a large "X". This artifact was identified as a poker chip or checkers piece (Masich 1979:20) and described with the rest of the ammunition category. On the other hand, a shoe sole with baseball cleats attached could as easily be assigned to the clothing category, but its function is specifically recreation-oriented rather than being general-purpose footwear, and so is included here. Also, many of the toys and games represented here are diversions of adults as well as children.

A total of 26 marbles was found at old Fort Stevens, just over half were clay and the rest were the more recent glass type. Most common were marbles of clay with a brown finish, glazed (diameters: 11 and 20mm) and unglazed (diameters: 14, 14, 15 and 18mm) followed by white finish glazed (20mm) and unglazed (14, 14, 16 and 16mm) then tan unglazed (13, 14, 14, and 17mm) and unglazed blue finish (16 and 16mm). Several of the unglazed marbles show remnants of surface coloration (Figure 28E). The production of clay marbles primarily occurred in the late 19th and early 20th centuries. Baumann (1970:28) dates the first commercially-produced baked clay marbles in the United States to 1884 with the last ones being produced around 1918. The marbles with blue or brown glazes are referred to as "crockery" marbles to distinguish them from those of baked clay with a single opaque

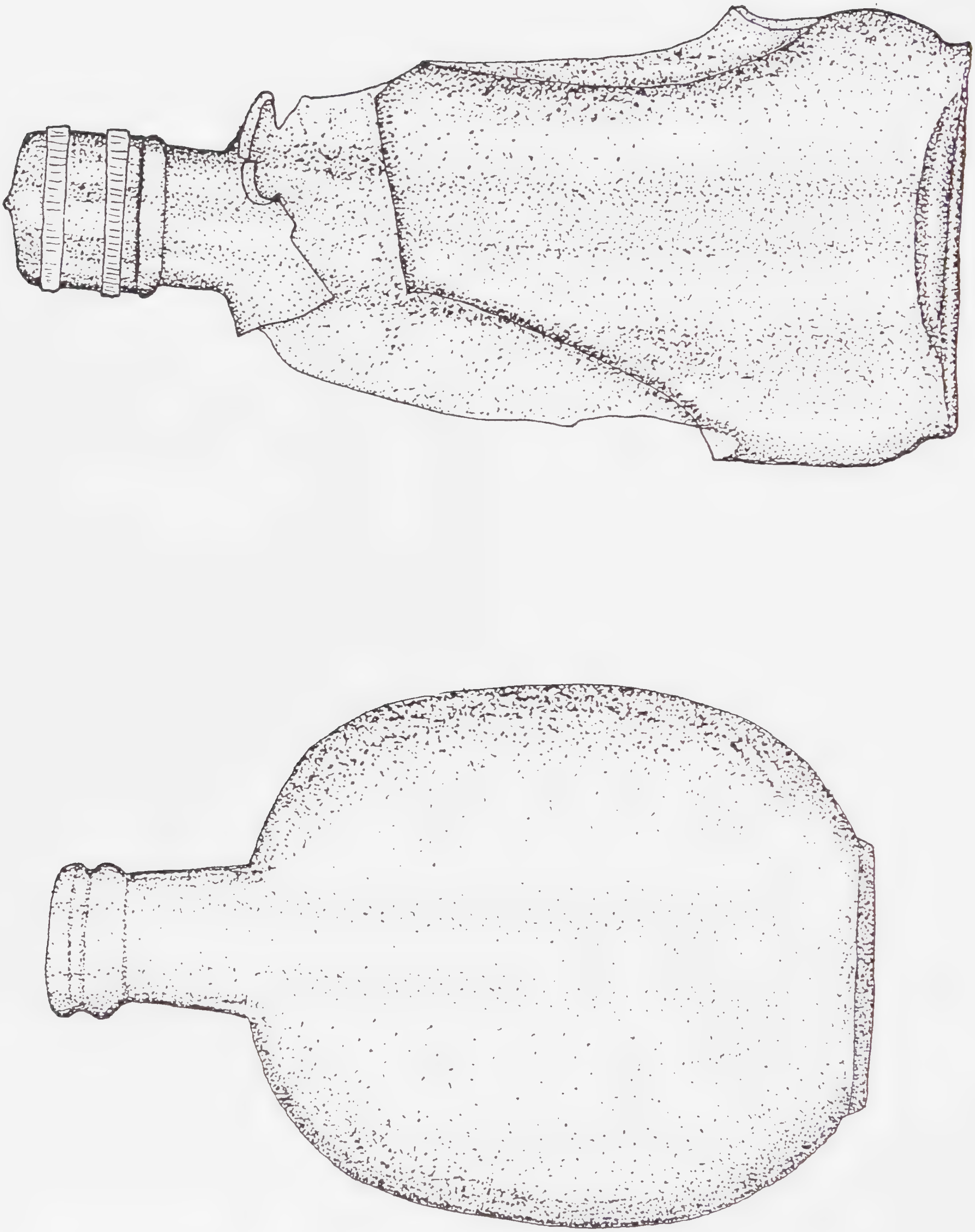


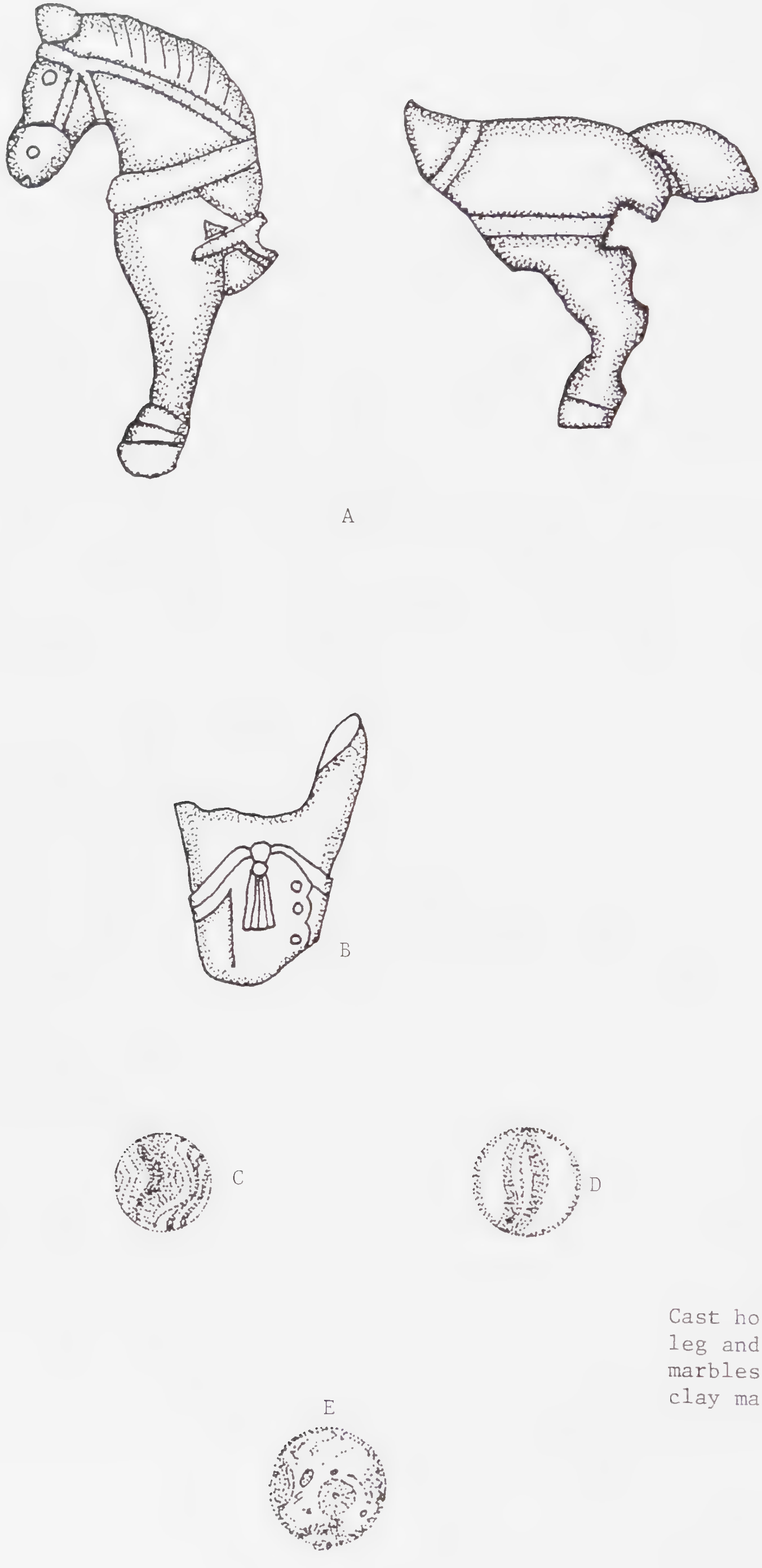
Fig.27

Flasks for alcoholic beverages

color or white with concentric rings painted on them (Randall 1971:103-104).

Nine glass marbles were also found, each of a different color (Figure 28C and D). Handmade glass marbles were commercially manufactured in Germany beginning in the middle of the 19th century, until about 1920. Marble-making machinery was used to mass produce glass marbles in the United States beginning about the turn of the century (Baumann 1970:84) and by 1926 these toys were being produced in essentially modern form. The glass marbles from the officers' quarters appear to be machine made, rather than handmade, and on post-1926 machines.

Other toys found include pieces of the handle of a toy gun, probably a .45 caliber automatic pistol, of cast steel. Also of cast steel are the pieces of the left side of a horse (Figure 28A), several wheels from toy vehicles, and a seated human figure, apparently a tractor driver. Pieces of a porcelain tea set were also present, as well as fragments of doll limbs (Figure 28B). Fragments of two red rubber balls, diameter approximately 35mm with a wall thickness of 1mm, a plastic wheel riveted to a strut, and a "Shmoo" design hand or finger puppet fragment were also found. Other plastic artifacts were a yellow plastic telephone base (22x15mm) and a blue plastic golf club (putter) which fits over the eraser ferrule of a wooden pencil. A camera shutter cable release fragment was also found, with "13" on the plunger head, and "PAT. NOV. 15, 1910, MAR. 18, 1919" on the



Cast horse (A), Doll's leg and boot (B), glass marbles (C and D), and clay marble (E)

Fig.28A-E

flange held in the fingers while the thumb operates the plunger button.

Baseball shoe cleats, triangular in design 60mm on a side, were riveted to shoe soles. There were numerous stories in Astoria's early newspapers regarding the popularity of baseball at the fort, with a team from Fort Stevens playing opponents from a variety of forts and towns in Washington and Oregon. These artifacts represent more public entertainment than the marbles and other items in the category, but would not be considered commercial entertainment.

The fragmentary remains of several clay pigeons attest to the pastime of recreational shooting at some point in the history of the site.

It is noteworthy that most of the artifacts in the Pastimes and Recreation category, with the exception of the marbles, are broken and were probably discarded as trash. The marbles, although chipped from usage, were still playable when they were accidentally lost or purposely discarded. The distribution of toys is shown in Figure 29.

Pocket Tools and Accessories

The artifacts included in this category include: a watch crystal fragment 5mm in thickness, three pocket knives and a key. The three knives have brass frames and bolsters, and heavily-rusted blades. The two larger knives (length 88 and 94mm) had dark wood plates, one with an inlaid shield. The third knife (72mm in length) had mother-of-pearl plates laid on the slender

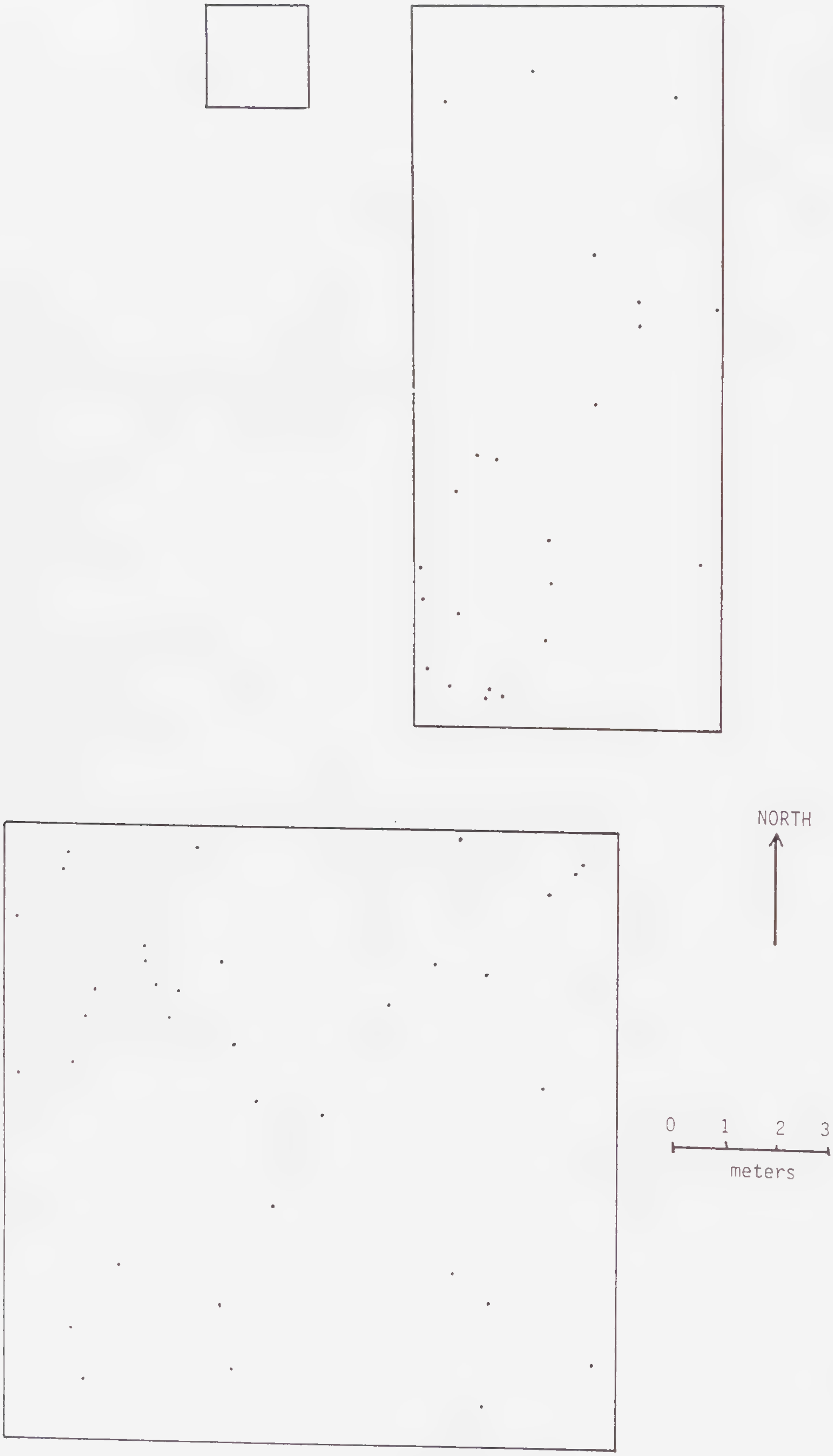


Fig.29
Distribution of toys

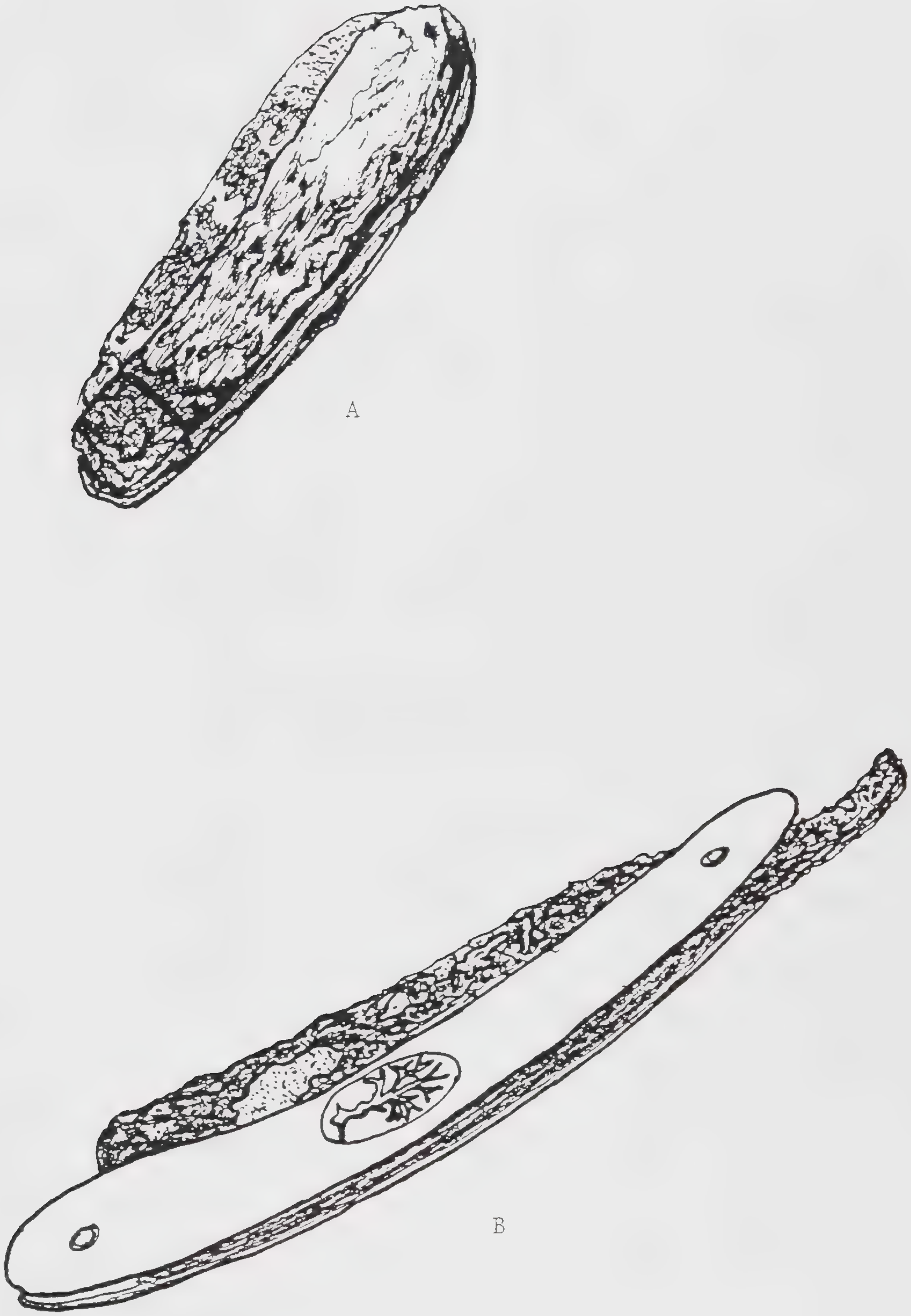


Fig.30

Pocket knife (A) and Herman Bokker razor (B) metal frame (Figure 30A).

A brass key was also found, consisting of a flat ring with the words "V. BOHANNAN/BROOKLYN N.Y." attached to a cylinder with a protruding flange to actuate the lock tumblers.

Some authors include coins, watch fobs and watches, and/or pencils in this category. In this report coins are treated separately, pencils are included under writing materials, and no watch fobs or other pocket watch parts were recovered.

Coins

A number of coins were found in the officers' house, dating from the entire life span of the fort as a military installation. The fort was built in 1865 and decommissioned in 1947 and the coins recovered from the site range from 1865 to 1948. The following table shows the number and date of coins which were found.

Coin	Date	Coin	Date	Coin	Date
Cent	1865	Cent	1925	Nickel	1920
Cent	1883	Cent	1929s	No date	N=1
Cent	1883	Cent	1936	Dime	1899
Cent	1897	Cent	1938	Dime	1918
Cent	1901	Cent	1942s	Dime	1920
Cent	1907	Cent	1943	Dime	1938
Cent	1910	Cent	1944s	Dime	1942
Cent	1912	Cent	1948s	Quarter	1907
Cent	1914	No date	N=4		
Cent	1924	Nickel	1902		

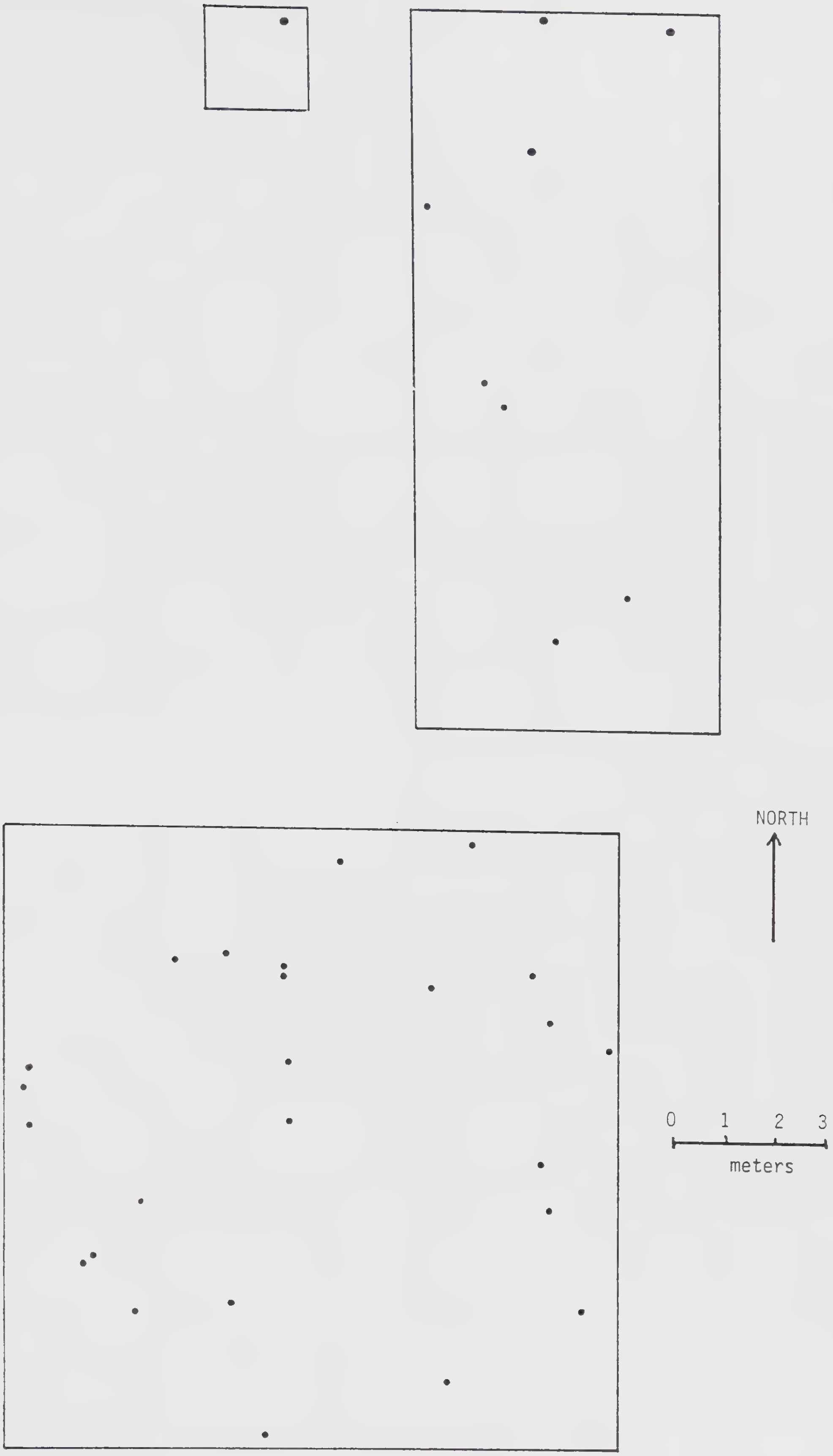


Fig.31

Horizontal distribution of coins

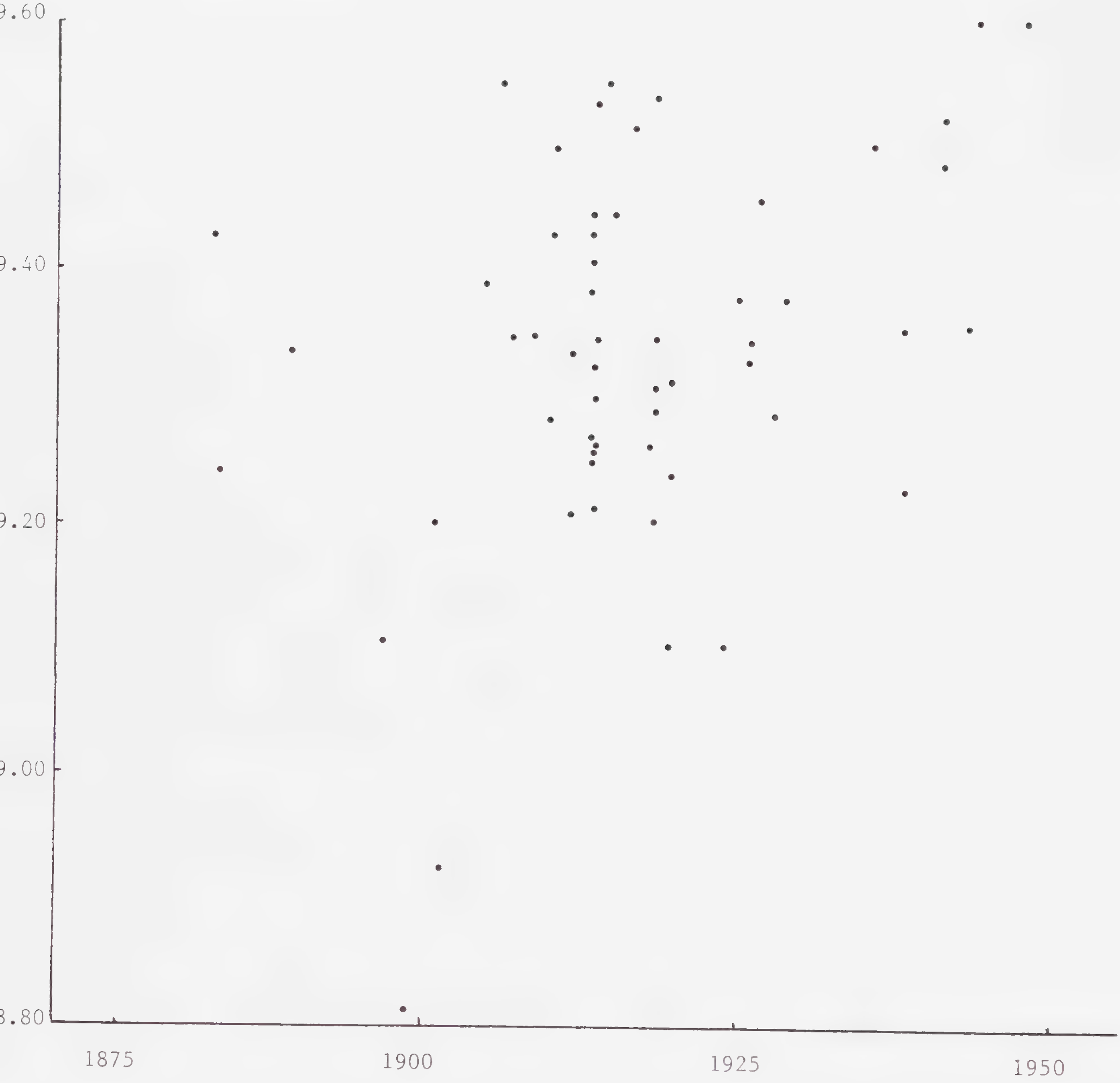


Fig.32

Relationship between coin depth and date

There were also two Utah one cent sales tax tokens of green plastic. Similar tokens of a five cent denomination were found in southeastern Washington in a site occupied by migrant fruit pickers during harvest seasons from 1925 until 1958 (Riordan 1976:84). The coins found in the site were probably lost rather than discarded and are distributed fairly evenly over the site in the horizontal dimension. Figure 31 shows the distribution of coins. One would expect some correlation between date of coin and depth beneath the surface of the ground, perhaps confounded by pocket curation and disturbance. The figure shows this relationship.

DOMESTIC ITEMS

The large category of domestic items includes all of those artifacts which deal with the normal operation of the household, including furnishings, housewares and appliances, materials used in cleaning and maintenance, household writing materials, home medical care, and related materials. While there may have been a division of labor in household duties, the artifacts in this category would have been thought of as belonging to the home rather than to the individual who lived there. Thus, straight pins for sewing are included in the functional category of "Cleaning and Maintenance" under domestic items, while a clay smoking pipe is considered under "Personal Items - Indulgences".

The majority of artifacts in this large category are related to the house and its operation and do not reflect on the military nature of its milieu or its occupants.

Furnishings

The category of home furnishings includes furniture, dry goods and decorative items. The artifacts described under this heading are included in the subdivision of furniture. For example, portions of an iron bedframe were found, one of which is illustrated (Figure 33A). The maximum length of the incomplete piece is 714mm and it is made of rod with a 13mm diameter. Seven casters were also found, which could have been for the bed or other moveable furniture. Fireplace tools include a complete set of tongs (Figure 34) and a matching set of poker and incomplete tongs (Figure 35).

Housewares and Appliances

Very few kitchen items were recovered in these excavations; since food was prepared, served and consumed on the premises, one would expect to encounter more items of a culinary and gustatory nature. In this category, there is one table knife and five spoons. The knife is brass with silver plate of 188mm length. Three of the spoons are utilitarian, iron or steel, and very rusty and fragmented. The other two spoons are fancier, silver plated, and 212mm in length. On the handle of one is stamped "H.25" and on the other is "CO.G 25th INF". Hanft (1980) does not include this unit among the troops stationed at Fort Stevens.

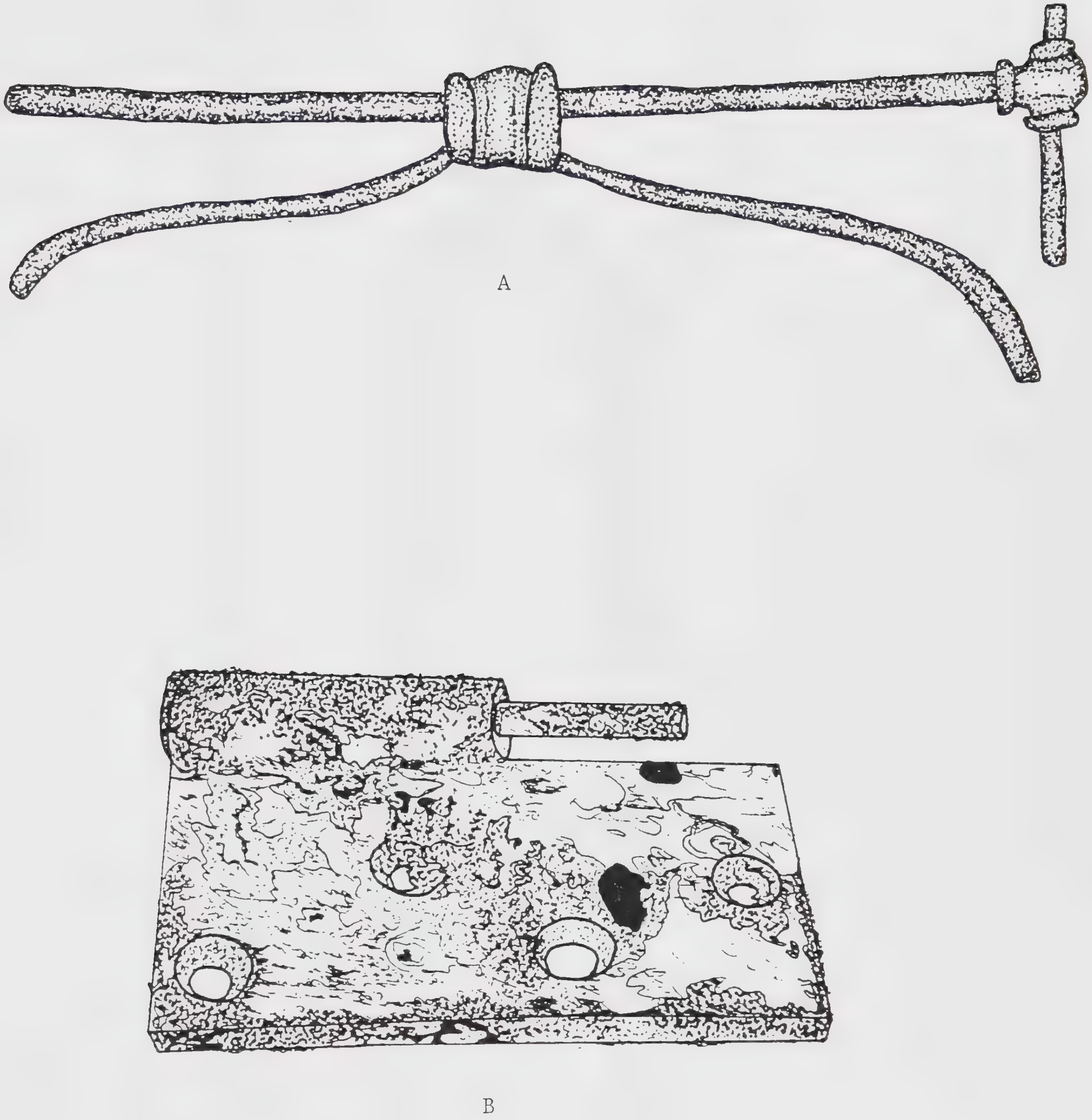


Fig.33
Portion of bedframe (not to scale, A) and hinge (B)

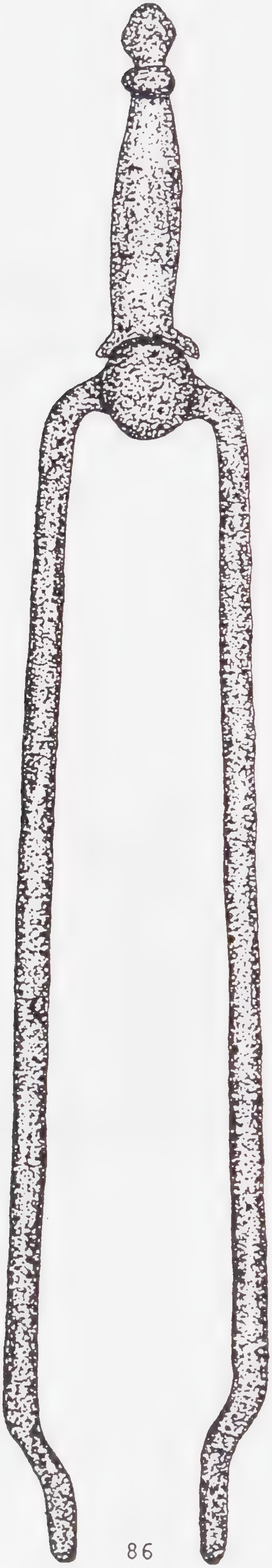


Fig.34

Fireplace tongs

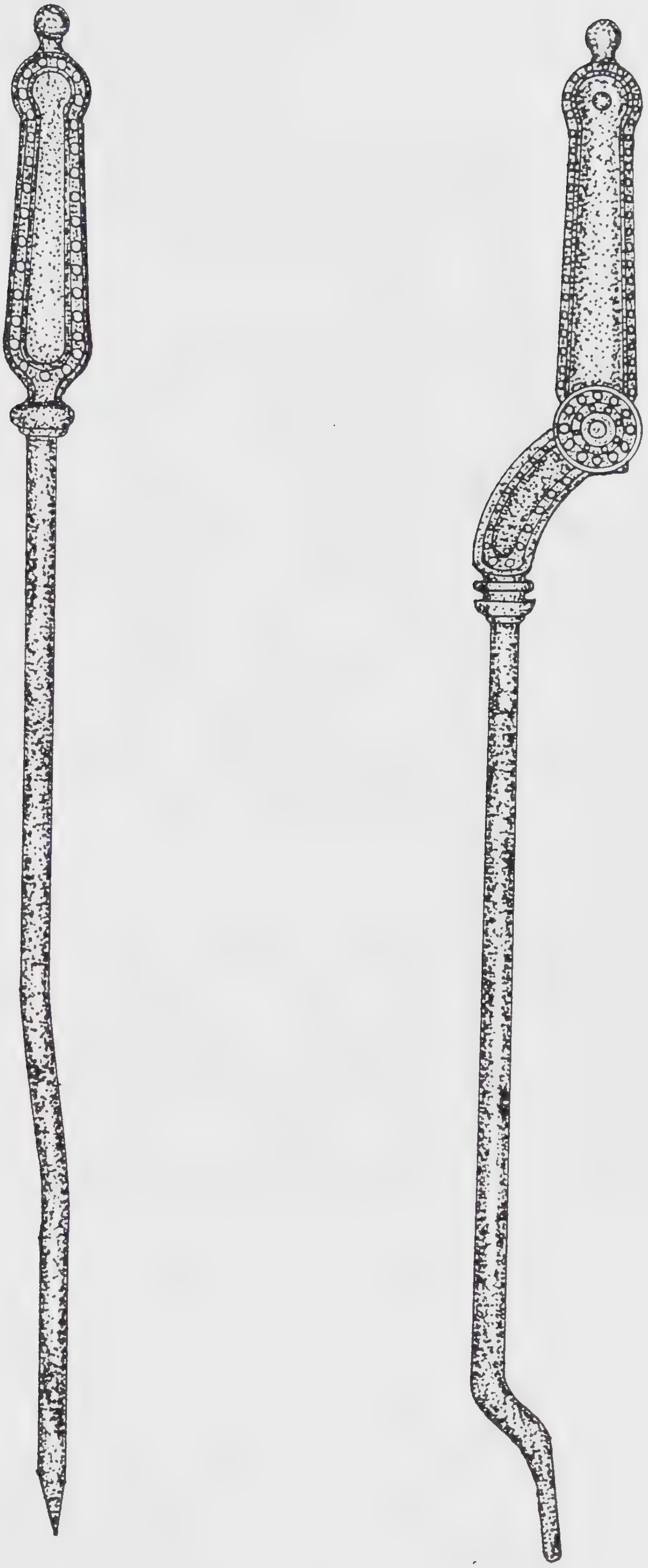


Fig.35

Fireplace tongs and poker set

Companies B, H and I of the 21st Infantry were at the Fort during various times from late-1872 to 1881 (Hanft 1980:271), but the 25th Infantry is not listed (Figure 36).

Several ground glass stoppers including three large stoppers of aqua, green and brown, were recovered from the site (Figure 37). The aqua-colored stopper has a round top, flattened for a grip, and a total length of 70mm. The ground portion tapers from a diameter of 24mm to 17mm. The other two stoppers are a bit smaller, with the grip top (above the ground glass sealing surface) broken off and missing. A ground glass percolator dome was also found. One plastic cap was found, octagonal in shape, with a diameter of 25mm and an height of 12mm. On the inside are the numbers "5-22" and "36".

Bottle seal fragments of metal contain some manufacturer's names, including "GARRETT AND CO." and "...ODERHA... TRADE...". A Virginia Dare Extract bottle embossed with Garrett and Co. of Virginia, New York, post dating the Pure Food and Drug Act of June 30, 1906 was found at Silcott (Adams, Gaw and Leonhardy 1975:115).

Fragments of a number of steel can lids were found, representing at least 11 different cans. Many of these are fairly large, with diameters ranging from 35 to 86mm. There were also two key-wind lids, probably from canned fish.

Eighteen crown caps were found, four of which still retained their cork liner. These closures were invented in 1892, and are

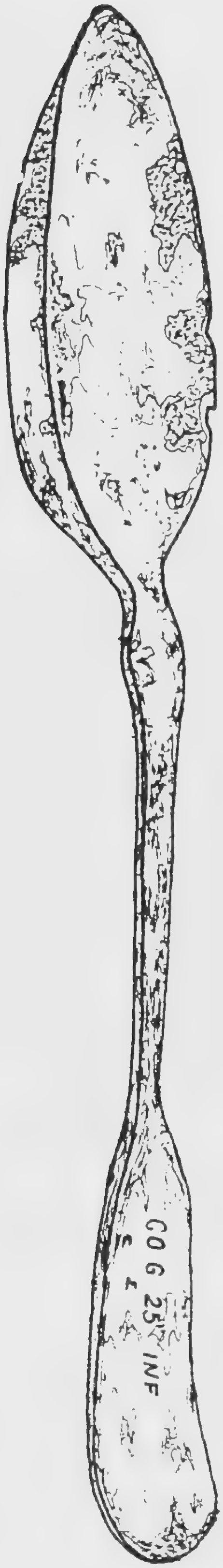


Fig.36

Plated spoon, Company G, 25th Infantry

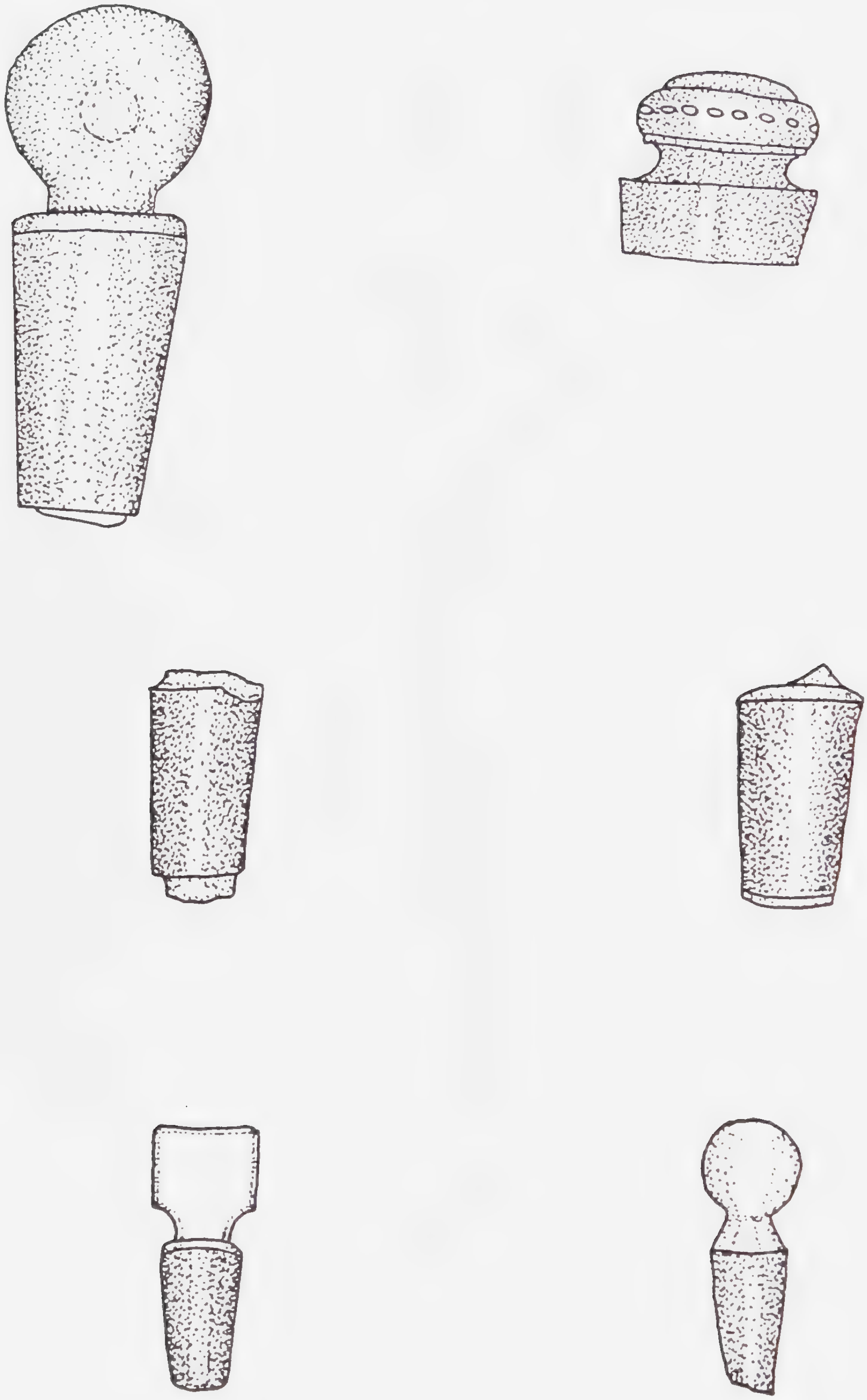


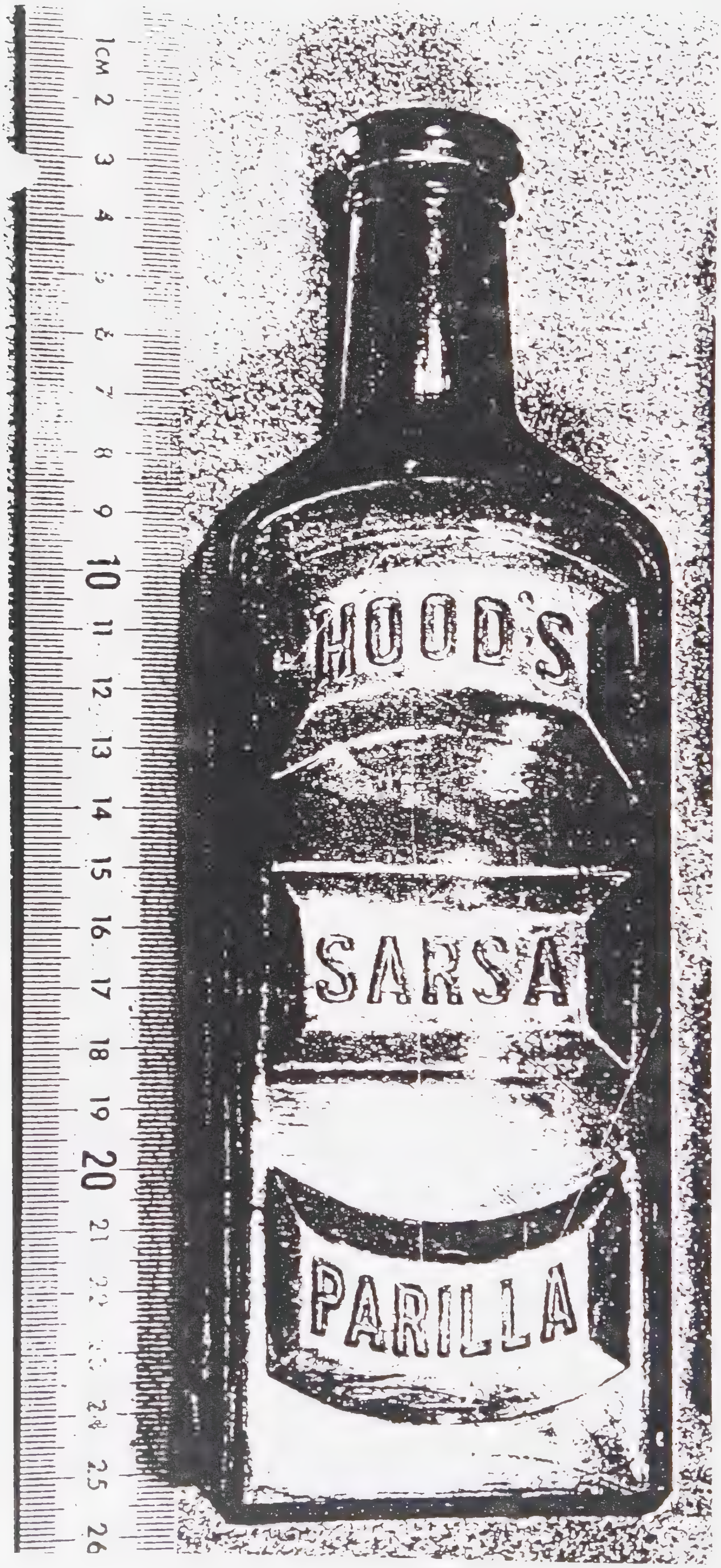
Fig.37
Ground glass stoppers

very similar to those in use today. They are crimped to seal tightly against a special bottle finish.

Hundreds of glass shards may be attributed to the functional classes of culinary and gustatory items, representing storage and preparation of meals, and their consumption, respectively. Several nearly complete bottles were found, including two which had contained "HOOD'S SARSAPARILLA" produced by C.I. Hood and Company of Lowell, Massachusetts. Several sarsaparilla bottles by the same corporation have also been found at Silcott, and notes on the C.I.Hood Company of Lowell, Massachusetts, indicate its presence in the Lowell City Directory from 1880 until 1922 (Adams, Gaw and Leonhardy 1975:128). Charles I. Hood (1845-1922) established a drugstore in Lowell in 1870 and six years later began formulating his own medicinals, including the sarsaparilla medicine with its 16 1/2% alcohol content (Figure 38).

A small round bottle had an impressed label identifying it as "HORLICK'S MALTED MILK". This product was manufactured as early as 1875 by Horlick's Malted Milk Corporation of Racine, Wisconsin (BNFI 1947:6). Figure 39 includes both the Horlick's bottle and a salt shaker.

Fragments of at least five different canning jars were recovered from the site; the most nearly complete is shown in Figure 40. Also found were several white glass canning jar lid inserts, including an half insert reading "...SON JARS...OYD CAP".



HOOD'S
SARSA
PARILLA
1CM 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Fig.38

Hood's Sarsaparil
bottle

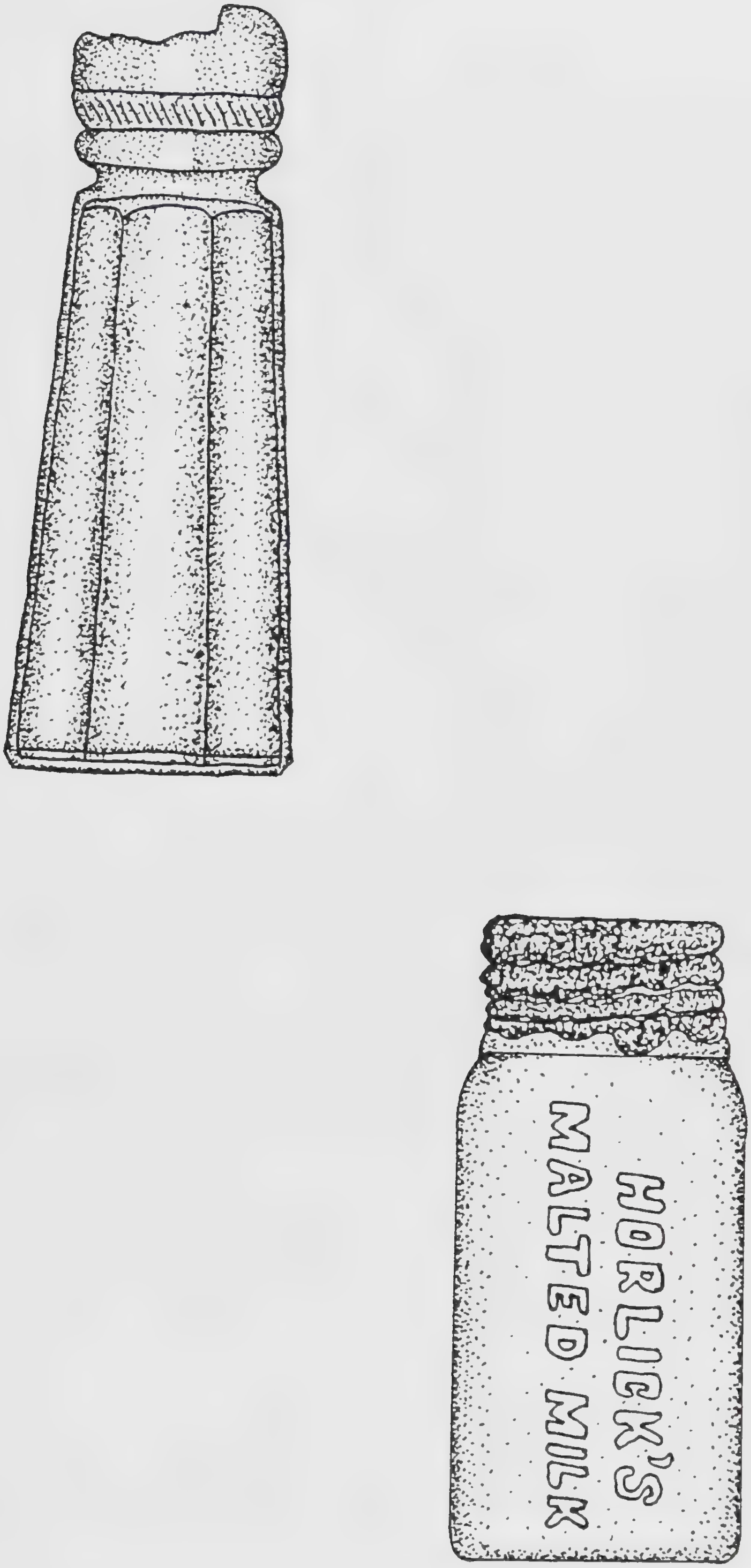


Fig.39
Salt shaker and Horlick's malted milk bottle

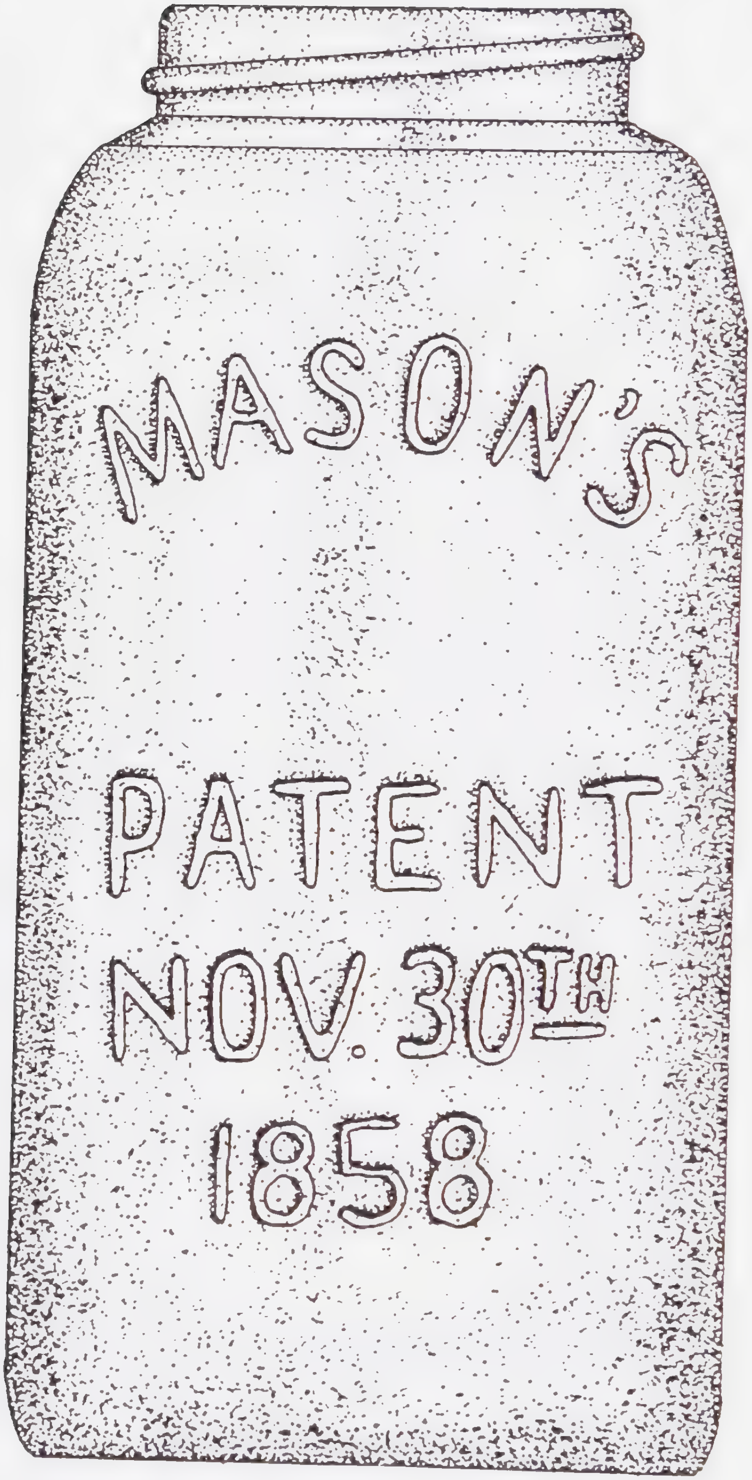


Fig.40

Mason's canning jar

Several fragments of small bottles may have held herbs or spices for cooking; one in fact is labeled "A.SCHILLING & CO.", "2 OZ. NET". This company has been bottling spices and extracts since 1887 (BNFI 1947:21). One complete light green bottle, of octagonal shape, has an incomplete metal continuous-thread cap and could have been a salt shaker or a spice container. The basemark says "NATHAN & WIGHT/PATENTED". One complete round clear glass bottle, with a face panel interrupting vertical fluting to the shoulder, contained catsup. The machine-made bottle, with a continuous-thread finish for a screw-cap, had embossed within a circle on the upper shoulder "PREFERRED STOCK CATSUP/EXTRA QUALITY" and within an inner circle the twined monogram of "A AND L". One green glass stopper is marked, on the flat top, "LEA & PERRINS" and was used with a bottle of the ubiquitous Worcestershire sauce. Other clear and aqua glass fragments may also have been portions of bottles for storage or preparation of food.

Glass fragments from drinking glasses were few; portions of at least 10 glasses were found. Most were plain glass tumblers, with five having more decoration. Two were vertically-fluted on the exterior surface, and the other three were of thinner glass, more well made. Of the latter, one has three bands etched or engraved 19mm beneath the rim. The middle band (4mm wide) is separated by 3mm from the narrow (less than 1mm) bands above and below it. Several other shards are probably from the same glass, with two parallel gold lines below a possibly gold painted rim of

3mm thick glass. Above and below the gold lines are circles, 3-4mm in diameter arranged in a triangular pattern. The other fragments are even more thin (1mm) and have a 4mm wide band painted around the rim. All of these drinking glass shards are too small to determine other characteristics of the glasses. Portions of four clear glass compote or stemmed glass goblets were found on the site. One of these includes a piece of the stem and base while the other three include portions of the stem and the base of the cup-shaped part of the vessel. Two of the latter have stems with a round cross-section, and clearly visible mold marks. The other stem is hexagonal in cross-section, and the piece with a portion of the base, also with mold lines, is ten-sided. Similar glass artifacts were found at the town of Silcott (Adams, Gaw and Leonhardy 1975).

Many other glass fragments of clear, light green, aqua and blue glass were found which may represent bottles, jars or tableware. These fragments were very small and scattered throughout many levels of the site.

The ceramic vessels from the officers' quarters were generally in an highly fragmented condition. The shards may be placed in three general classes, based on the type of clay used in the piece, hardness and firing temperatures used in the manufacturing process. These three classes, from cheapest and most durable to finest and most expensive are earthenware, stoneware and porcelain.

Several varieties of brown utilitarian earthenware were recovered from the site. One fragment of coarse wear is 11-13mm thick, with a brown glaze on both interior and exterior surfaces; on the exterior the glaze terminates 7mm from an edge. The shard measures 43x37mm and is probably from a crock. A second type of brown earthenware has a finer fabric and finish, and the few shards found suggest a crock or large bowl. The shards are 7mm in thickness, have a dark brown glaze, and a series of turned ridges below the rim. The third type of brown earthenware is represented by a number of 3mm thick shards with a dark brown underglaze on both exterior and interior surfaces. The base ring has an estimated exterior diameter of about 80mm and a shape which suggests a bowl.

Several pieces of yellow earthenware also represents utilitarian pieces, probably bowls. The shards are about 7mm in thickness with a clear glaze which is crazed.

A number of earthenware shards indicate utilitarian vessels, primarily flatware but also some hollowware. Plain white earthenware, with an heavily crazed glaze includes fragments of one plate. Plain white earthenware with a white glaze and no decoration, either molded or colored, includes pieces of two plates, two saucers and a probable bowl.

A large number of stoneware fragments was also found at the officers' quarters. Fragments of at least six saucers and plates were found, as well as portions of at least three bowls. One very small plate (diameter 67mm) may have been an individual butter dish. These dishes were a plain white everyday service with the only decoration being an impressed rim on one plate. Hallmarks on shards show that the ware came from both England and the eastern part of the United States. One shard is basemarked "THOS. HUGH.../FRENCH POR..." and was probably manufactured by Thomas Hughes, an English firm located at Burslem and Longport, Staffordshire, between 1860 and 1894. A second mark contains a crown beneath a banner with "ROYAL" and above a banner with "STONE...". Beneath the lower banner are the words "MADDO.../BURSLE..." (Figure 41).

A third basemark has most of the insignia of the Charles Meakin company of England, with "ROYAL IRONSTONE CHINA" above the Royal Arms device, probably dating to the last two decades of the 19th century.

A saucer base is marked "DRESDEN/CHINA" and was manufactured in East Liverpool, Ohio, by the Potter's Cooperative sometime between 1882 and 1927 when the business was discontinued (Lehner 1988:60). See Figure 42.

Another saucer was basemarked "WARRANTED/K,T&K/GRANITE" which Lehner (1988:239) attributes to an 1879-1904 manufacture by Knowles, Taylor and Knowles of East Liverpool, Ohio (Figure 43). One small fragment was found with a basemark reading "RADISSON/...S. GEORGE/813". Similar ware, although with a different number, was found at Silcott (Adams, Gaw and Leonhardy 1975:265).

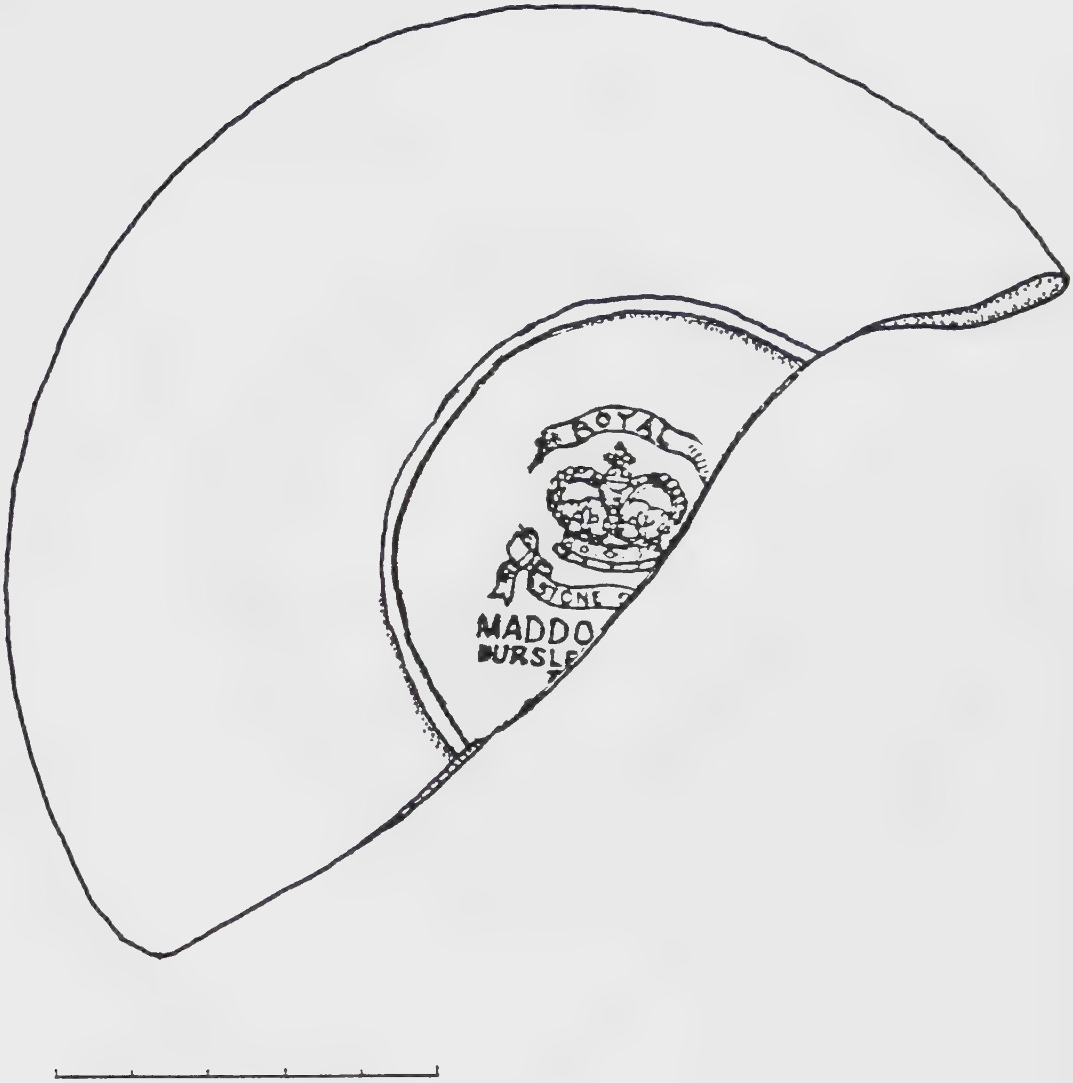


Fig.41
White stoneware saucer basemark. -Maddox, Burslem

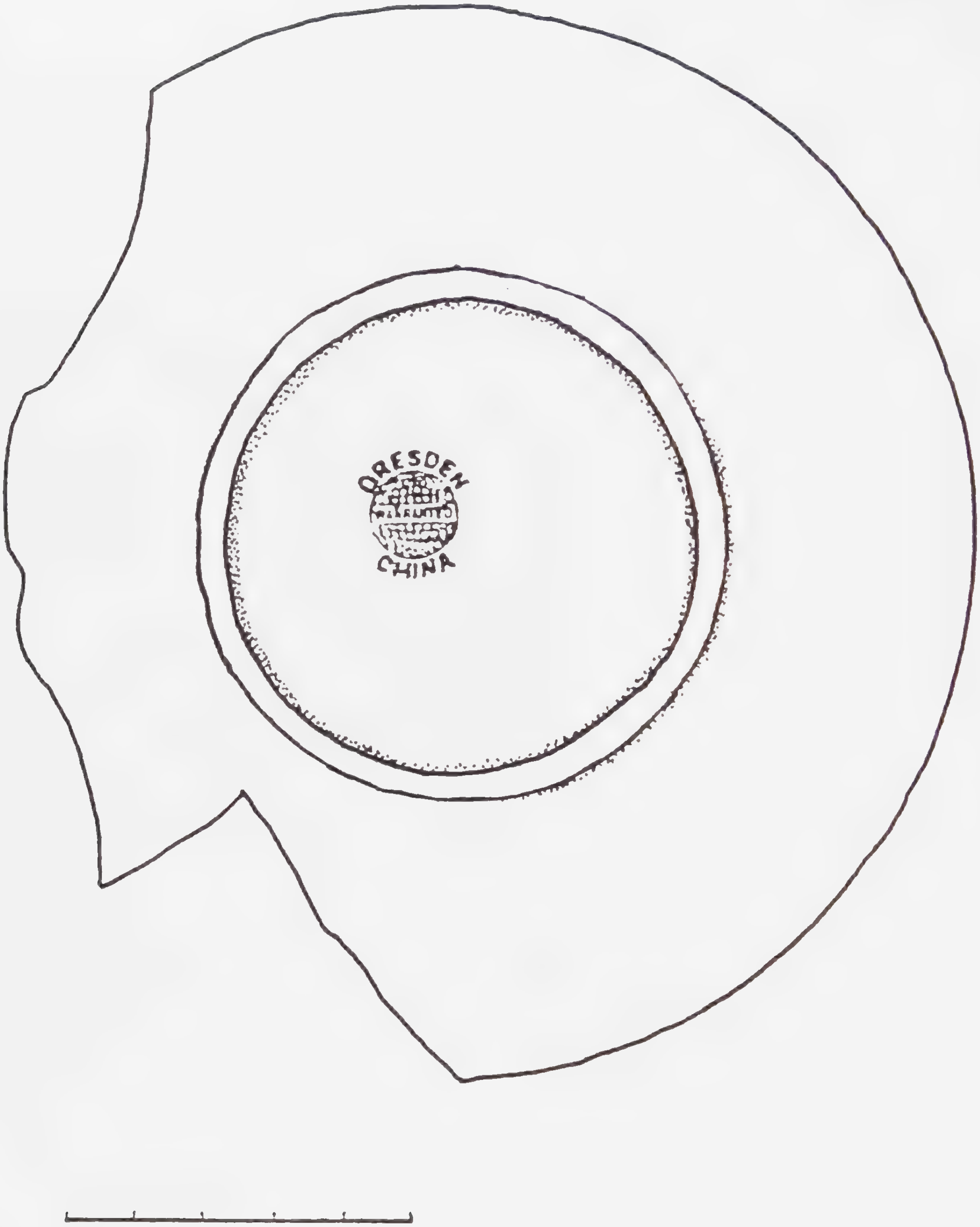


Fig.42
White stoneware saucer basemark - Dresden

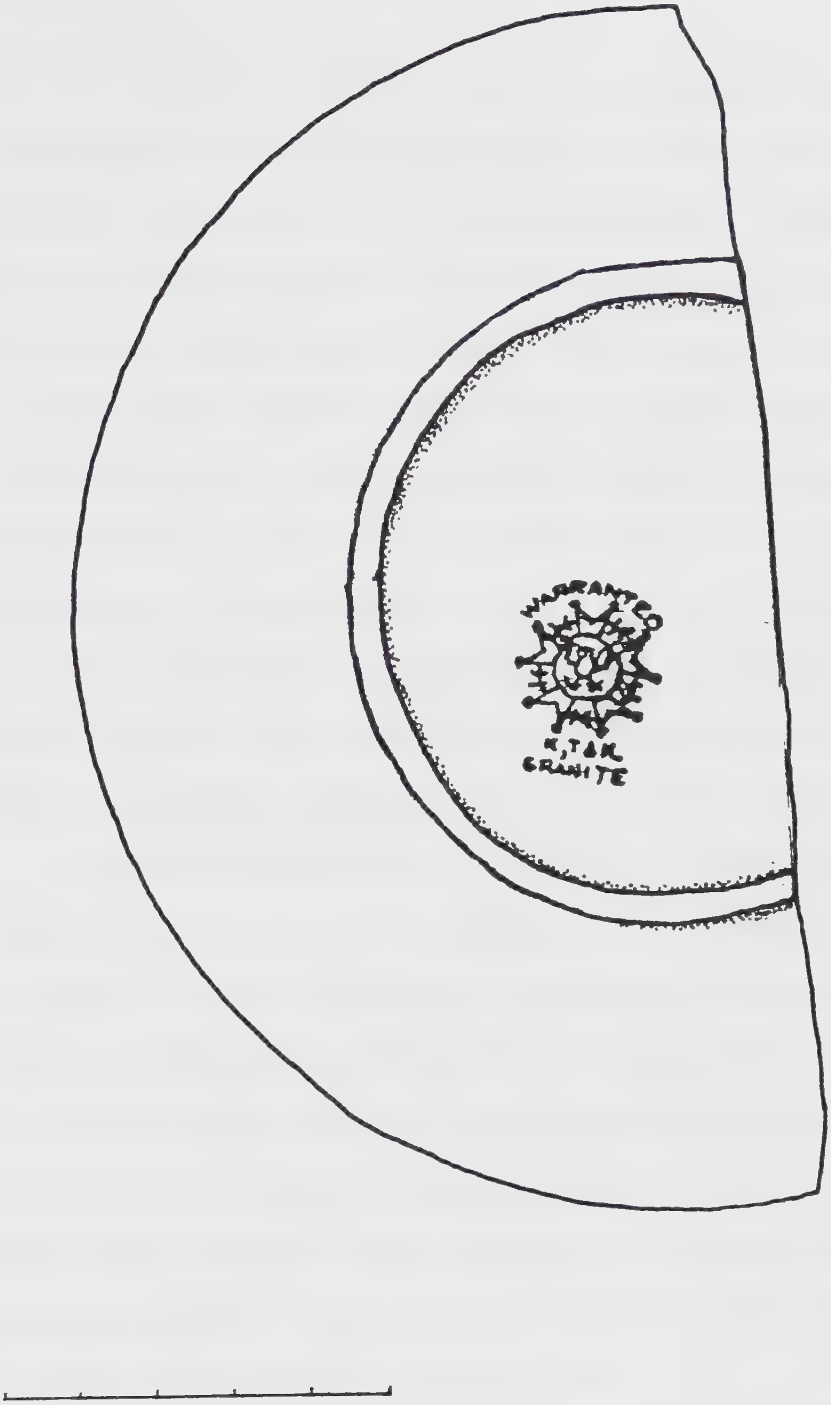


Fig.43

White stoneware saucer basemark - K,T&K

Four pieces of stoneware with a colored decoration lack basemarks (primarily because they lack bases). Fragments of one plate bear the transfer-printed Blue Willow pattern. Several shards of this plate have been exposed to fire. A second colored piece is a portion of a cup with a flow blue floral pattern and incised dots around the base. A third vessel is a portion of a rice bowl with a painted blue design of lines and eyes with a spiral in the center of the interior surface. Finally the letters "QMD" are on the rim of a plate issued by the (U.S. Army) Quartermaster Department. It should be emphasized that the ceramic materials from the officers' quarters are characterized by two attributes: the vast majority of the shards are white undecorated utilitarian ware, and all of the pieces are fragmentary, many being in the range of one to five square centimeters. From the distribution of the shards it is difficult to discern if the ware was broken and then discarded, broken while being discarded, or discarded whole then broken later. A combination of these three processes is suspected.

Several pieces of porcelain (china) were found, all small shards with no complete vessels. The most nearly complete specimen was a portion of a fine teacup with a rose and leaf motif and hand-painted gold highlights. The body of the cup has walls of 2mm thickness. One other teacup handle was found, also with hand-painted gold lines. A second vessel is represented by several 3mm thick shards with hand-painted flowers over a blue glazed interior and a clear glazed exterior with more of the flower motif. A third type of porcelain is a small fragment of rim with an impressed design covered by a dark blue glaze with painted gold lines to emphasize the elements of the design. Several fragments of a hollowware china piece were found; the shards are thin (3mm) with a clear glaze and no decoration. None of the porcelain pieces contained manufacturer's markings. Figure 44 illustrates the vertical distribution of ceramic and glass pieces.

Portable Illumination

More than 24 fragments of thin (1mm) curved glass represents the remains of probably one lamp chimney.

Cleaning and Maintenance

This category includes those objects relating to the household chores of laundry and clothing maintenance. The only artifacts from the former duty are a number of steel clothespin springs, which would attach two slats of wood together to suspend clean laundry from a drying line. These springs have a length of 28mm, coiled spring diameter of 9mm, and a width of 15mm (N=6). These springs are heavily rusted. Similar springs were found at excavations in Bill Wilson's store at the town of Silcott (Adams, Gaw and Leonhardy 1975:146).

Clothing maintenance items include safety pins, straight (sewing) pins, and thimbles. The safety pins are on plated brass, and most were broken. There were 20 fragments of safety pins found and 11 complete safety pins, length 30 to 51mm. A large number of straight pins of plated brass 30mm long were

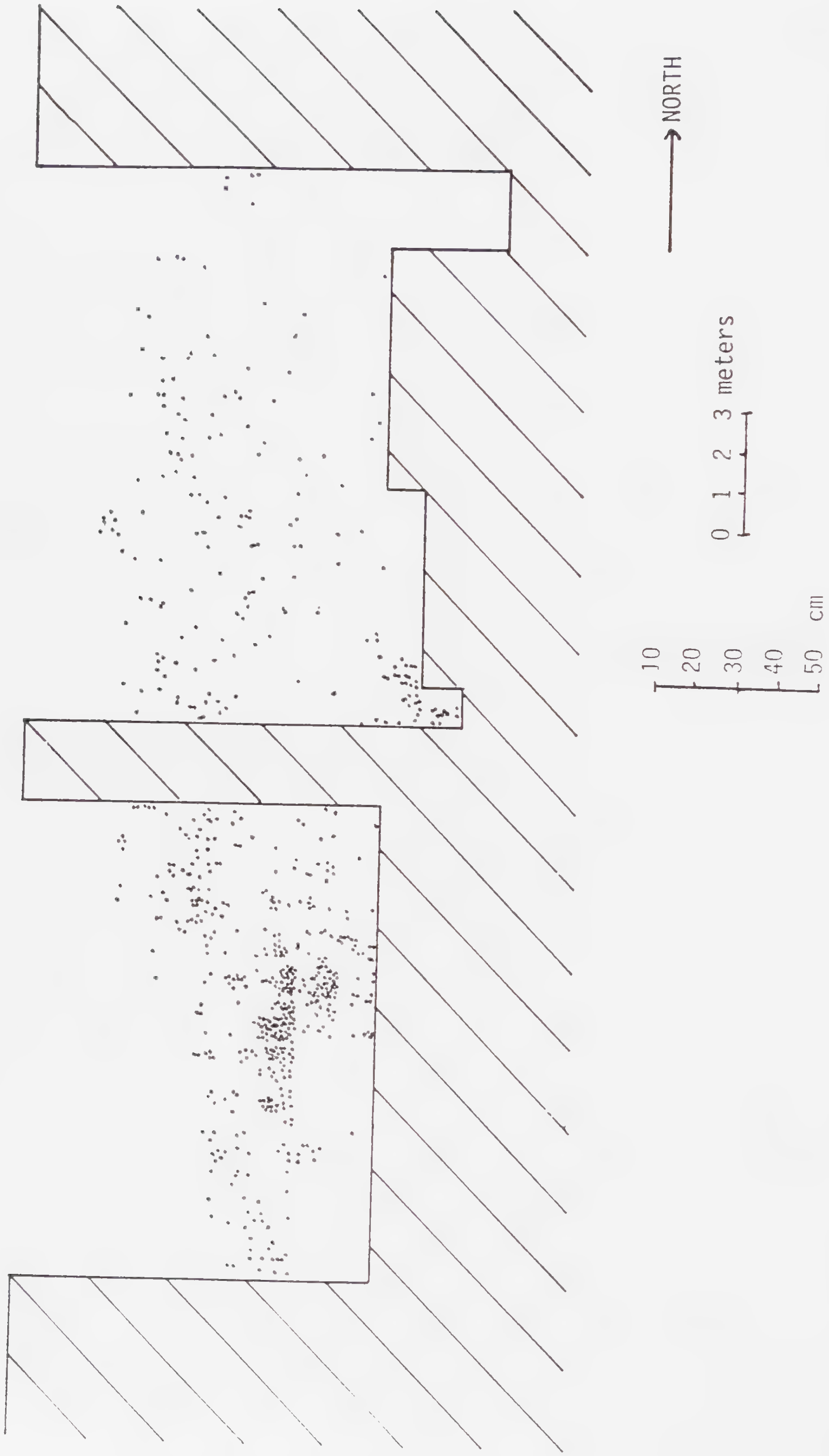


Fig.44

Vertical distribution of ceramics and glass recovered, most _in situ_ (N=72). A small brass sewing thimble, distorted, was also recovered. Shoe maintenance is represented by two bottles which contained leather protection products. One is labeled "REGAL WATERPROOF DRESSING". The second is a round bottle with the name "BIXBY" on the base. It probably contained "BIXBY'S JET OIL" shoe polish, manufactured by The Best Foods, Incorporated of New York City. This company used the "BIXBY" mark as early as 1869 (BNFI 1947:4). The Bixby Shoe Dressing (blacking) would have been applied with a natural sponge swab inside the bottle. A small sad iron (Figure 45B), probably a ruffle iron, was also found. No other items were attributed to this category. It is possible that some of the laundry of the officers' families was washed by the laundress in her facility.

Writing Materials

Slate pencils are the most abundant artifacts in this unit. These were made from rods of slate with facets carved into the sides. Most of the slate pencils have a carved or whittled point, and one to several sides carved flat. Three diameters of slate pencils were found, 4mm (length 22m, N=1), 6mm (length 45mm, N=1) and 5mm in the following lengths in millimeters: 20, 21, 23, 27, 31, 31, 31, 32, 37, 41, 41, and 47. The mean length is about 31mm. Seven of these pencils have faint parallel lines visible along the length of the pencil, and five have diagonal striations visible on the flat surfaces from the manufacturing process. Similar slate pencils were found in Hudson's Bay contexts at Fort Vancouver (Chance and Chance 1976:195).

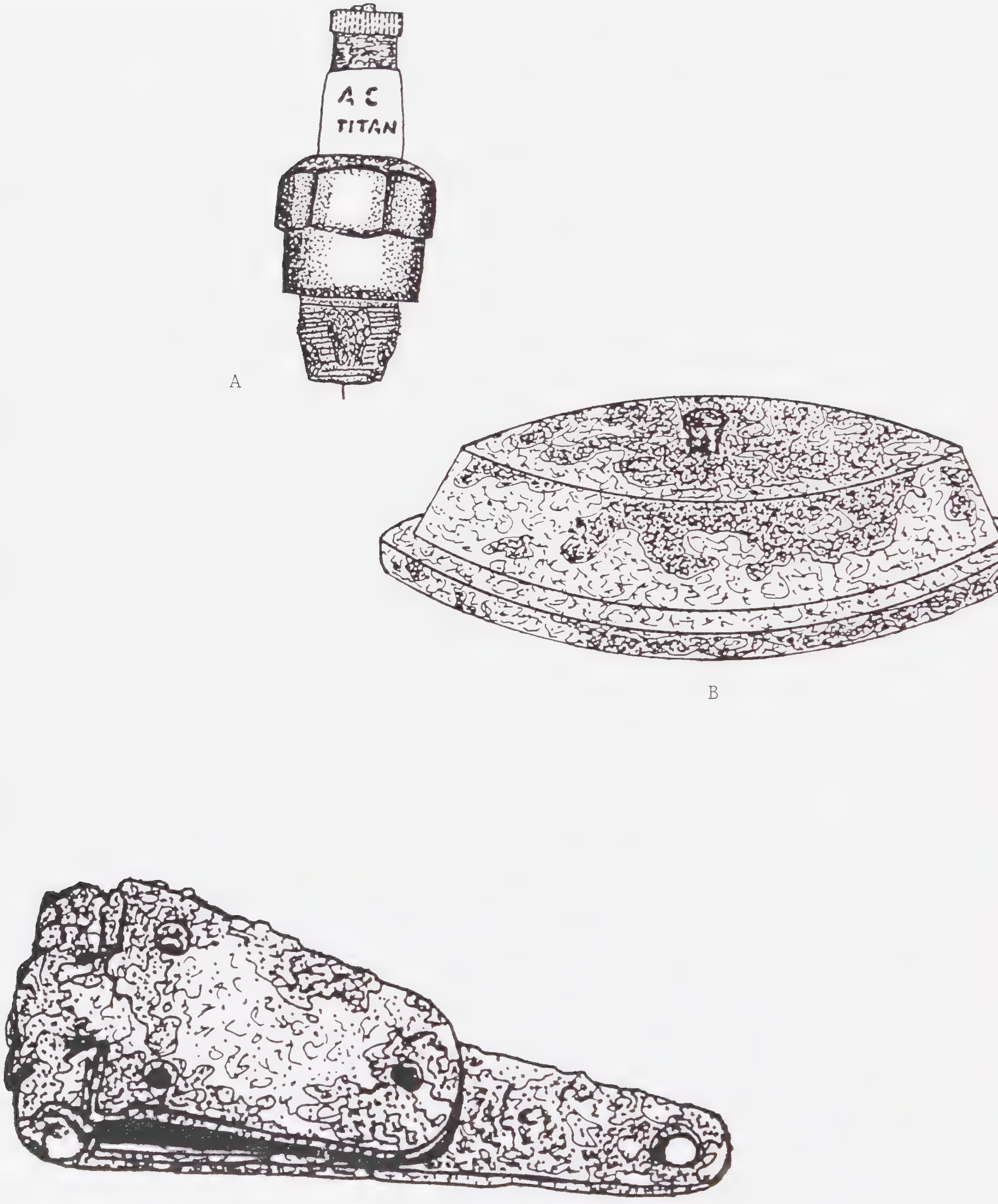


Fig.45
Spark plug (A), sad iron (B) and strap hinge (C)

The more recent round cross-section pencil "lead", diameter 2mm, was also found, in lengths of 17, 18, 27 and 64mm. "Lead" with a diameter of 2.4mm was represented by one piece 20mm long. Pencil "lead" with a diameter of 2mm and a hexagonal cross-section was found with the four pieces totaling 183mm. Carpenter's pencil "lead", with a rectangular cross-section 6mm wide, was also found, in lengths of 12, 20 and 22mm. The more recent wooden pencil with metal ferrule and eraser was represented by two specimens of 20 and 25mm length. Both had been heavily used at both ends. A replaceable rubber pencil eraser, with the typical flattened cone shape and a length of 27mm was found, as was one brass pen nib with the inscription "R.ESTERBROOK & CO." and "RELIEF". This company began production of pens in 1858 in their plant at Camden, New Jersey (BNFI 1947:3).

One glass bottle was marked "CARTER'S INK/FULL PINT". The Carter Ink Company was established by William Carter in 1858 and continues to the present (Berge 1980:104).

ARCHITECTURE

As noted, most building materials were not treated as artifacts. Instead, provenience was recorded for these items as found in situ, and drawn on level maps for the record. Bricks from the house foundation and fireplace, firebrick, window glass and framing, lumber, molding, mortar, nails and plaster were generally mapped and recorded for each level in each 2x2 meter square. Other items were treated as artifacts and information is presented in this section on construction materials, building hardware, plumbing and electrical materials, and other items associated with the structure itself.

Construction Materials

Items in this category include those artifacts which were formerly part of the building and its furnishings. The brick foundation of the house, much of which is intact, and the fireplace base, also of brick, are shown in Figure 46, along with the other bricks found in the excavations. Some 4,268 bricks and brick fragments were mapped in place, and this figure shows their distribution. Figure 47 shows the brick foundation, fireplace base and brick support pillars, as well as gravel areas, burned areas, water and sewer lines.

The bricks in the foundation, as well as bricks and fragments scattered throughout the site, varied in color from dusky red (Munsell 10R 3/3), weak red (10R 5/2), red (10R 5/6) and light red (10R 6/8), to the common red brick (2.5YR 5/6). Examples were found of both stiff-mud bricks and the poorer quality soft-mud bricks. Some of the older (presumably) soft-mud bricks have handmade frogs (rectangular depressions which serve as a key for mortar in wall construction). One of the bricks has an impressed manufacturer's mark of "E.J.JEFFERY/1873", which Gurcke (1987:230-231) identifies as the company of Edward James Jeffrey (elsewhere, "JEFFERY"), a brick manufacturer in Portland,

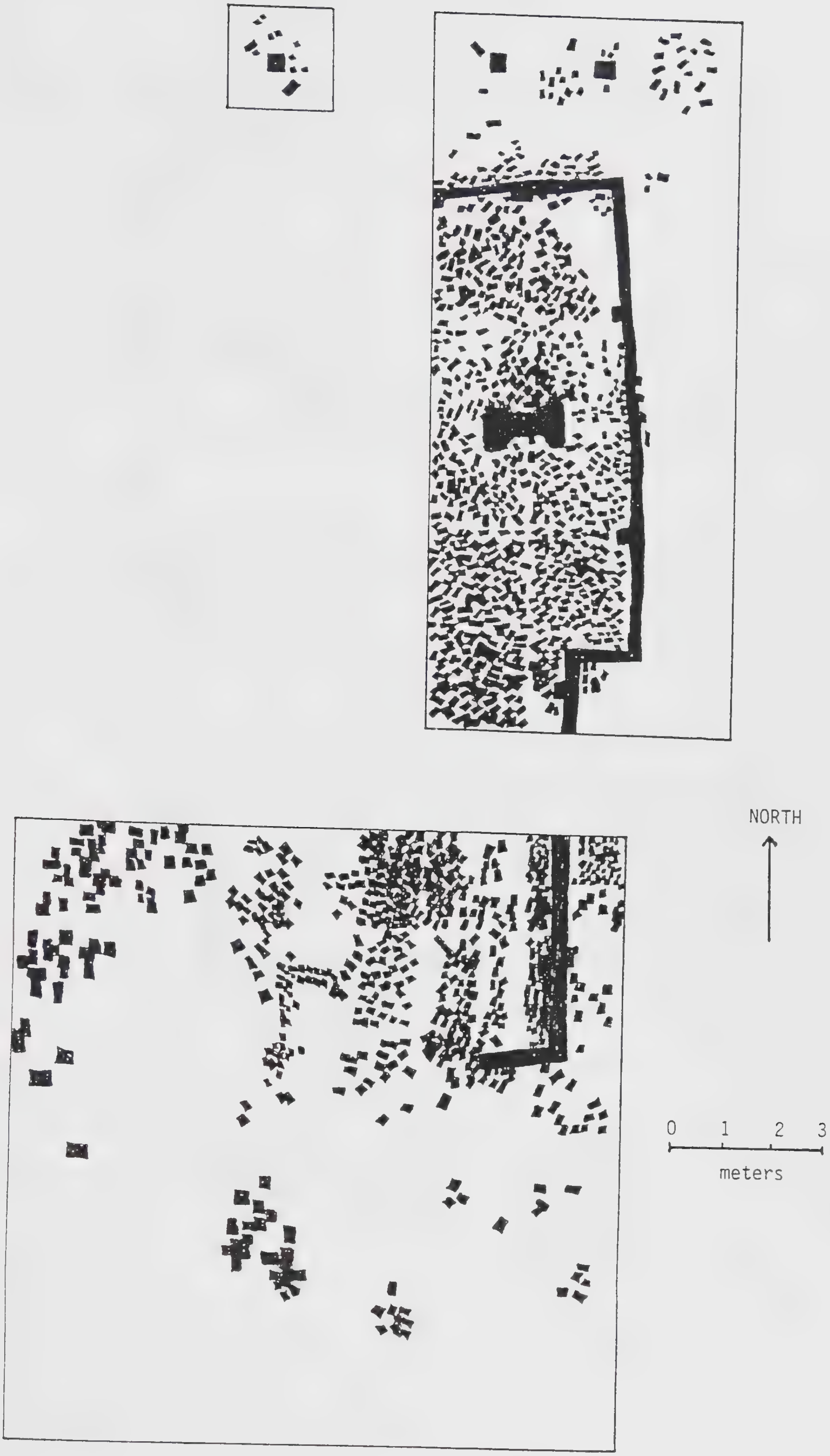


Fig.46

Distribution of bricks in excavation units

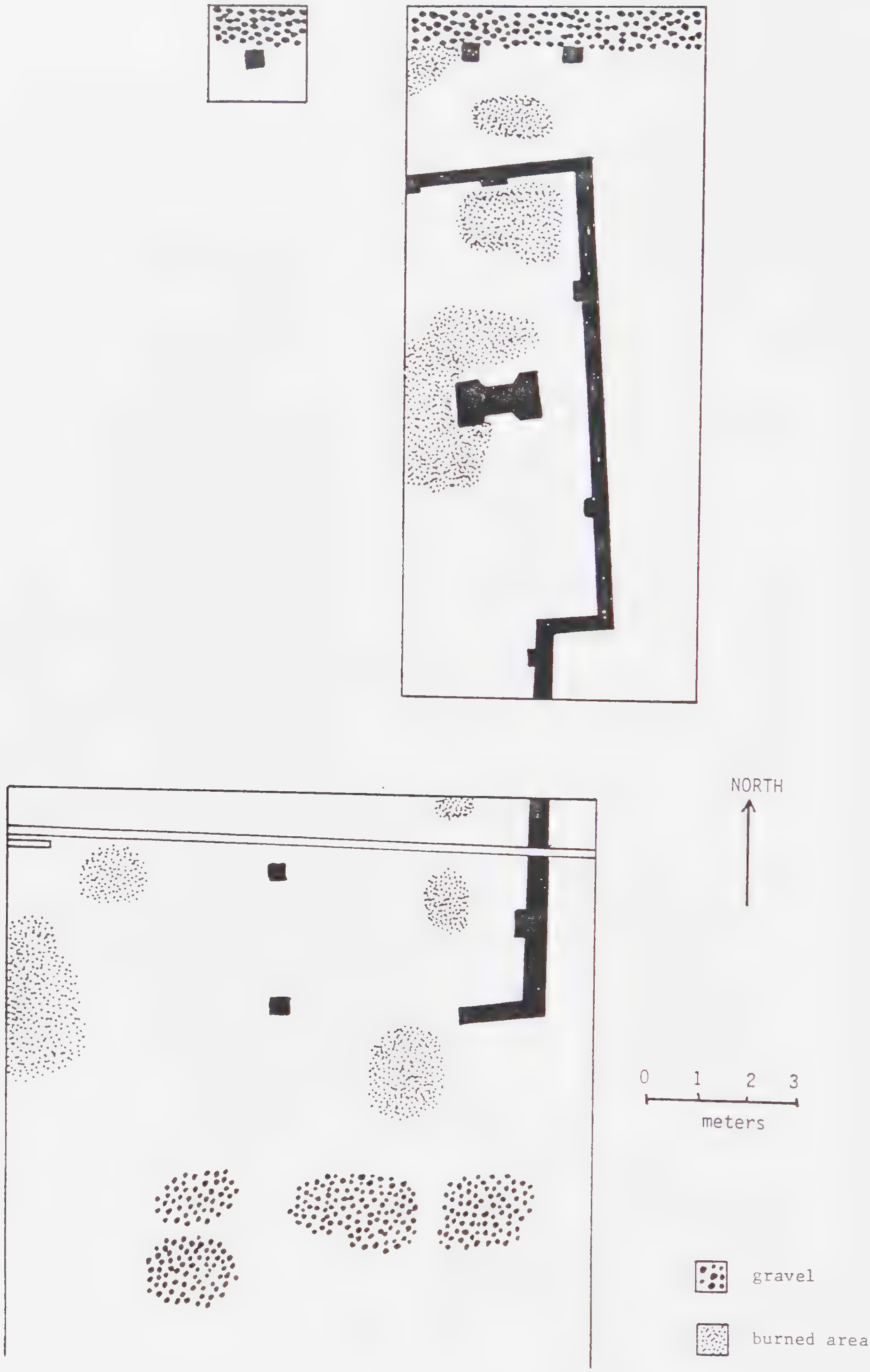


Fig.47
Concentration of gravel and burned materials

Oregon from 1867-1895. A dark red brick of higher quality has the word "HIDDEN" inset in a frog or recessed box. Gurcke identifies this as indicating manufacture by the Hidden Brick Company of Vancouver, Washington, which began operations in 1871 (1987:246-247). Another brick has a paw print, probably from a cat, impressed in the surface. Gurcke notes (1987:124) that this is not unusual in older yards where green bricks are dried in the open air.

The Jeffery and Hidden bricks postdate the initial construction of the building and its foundations, and could be related to the foundation reconstruction work or be intrusive, related to the adjacent NCO structures.

A number of firebricks were found, all in a fragmented condition, and two with manufacturer's marks impressed in the face. One of these marked firebricks is labeled "CLIFF & S.../WORTLE..", and the other "BRO.../FIRE-BR.../N.../RBC". These marks are not mentioned in Gurcke's list of firebrick brands found in the Pacific Northwest.

Some fragments of lumber and molding were recovered, in very deteriorated condition. Also found were several pieces of plaster, probably from an interior wall of the structure. Several of the plaster pieces still retained surface paint, sometimes in several layers. The most frequent color layer series for painted plaster, from earliest to most recent applications, was: dark aqua, red, mustard, egg shell white, blue, white, light tan. Wallpaper fragments recovered were in a leaf design in white, blue and gray.

The vast majority of the steel nails found in the site were machine-made square nails which outnumbered common wire nails by a ratio of 2:1. There were also a number of spikes found, in lengths of 112, 117, 124, 128 and 145mm.

There were more brass than steel screws found. Round-head brass screws were found in 5, 7, 8, 9 and 16 gauge (N=1 of each size). Flat-head (counter-sink) brass screws were found in 5 gauge (N=1), 6 gauge (N=3), 9 gauge (N=4) and 11 gauge (N=1). One oval-head brass 8 gauge screw was also found. Three round-head steel screws were found, in gauges 9, 10 and 14. Brass tacks were recovered in the following lengths: 13mm (N=1), 18mm (N=1), 20mm (N=2), 23mm (N=8) and 33mm (N=1).

Flashing was found of galvanized steel, 140x48mm and 110x57mm, and zinc, 215x140mm and 208x115mm. One piece of galvanized steel flashing had two common wire nails (25mm long) piercing it, while a piece of the zinc flashing had a square nail (38mm long) through it, suggesting it was used earlier.

A variety of iron and steel bolts and nuts was found. Three square-headed bolts were recovered, with the following dimensions: length, 373mm, head width 25mm (one inch), diameter 19mm (N=1); length 243mm, head width 25mm, diameter 17mm (N=1); and, length 172mm, head width 21mm, shaft diameter 12mm. The following square-head steel nuts were found, with dimensions given in order: head width, thickness, diameter of threaded hole.

19, 9, 6	N=2	25,15,14	N=1	25,18,10	N=1
40,19,16	N=1	24,18, 9	N=1	30,18,10	N=1

Three wire staples were also found, with a length of 41mm and wire diameter of 4mm. Other screw eyes and screw hooks and brackets were recovered at the site in extremely corroded condition.

Door Hardware

Door hardware includes four brass and one steel mortised striker and bolt plates, six loose-joint door hinge halves, two loose-pin door hinge halves (Figures 33B and 45C), three white glazed ceramic door knobs, one black glazed ceramic door handle, and an iron upright rim lock case (Figures 48 and 49). Other hinges include cupboard hinges, blind fixture hinges, large V-strap hinges, and cast iron pintle hinges. Several curved rain gutter hangers were also found; these are similar to those found on the still-existing post-1900 military buildings in the area. A number of fragments of iron fireplace log grates were found; these have a triangular cross-section and appear to have been burned-through in use.

These building construction materials and hardware were distributed throughout the site, including some areas with burned materials mixed with plaster, wire common nails, burned wood and ash.

Tools

Very few tools were encountered in the remains of the officers' quarters. Fragments of three metal files, a chisel

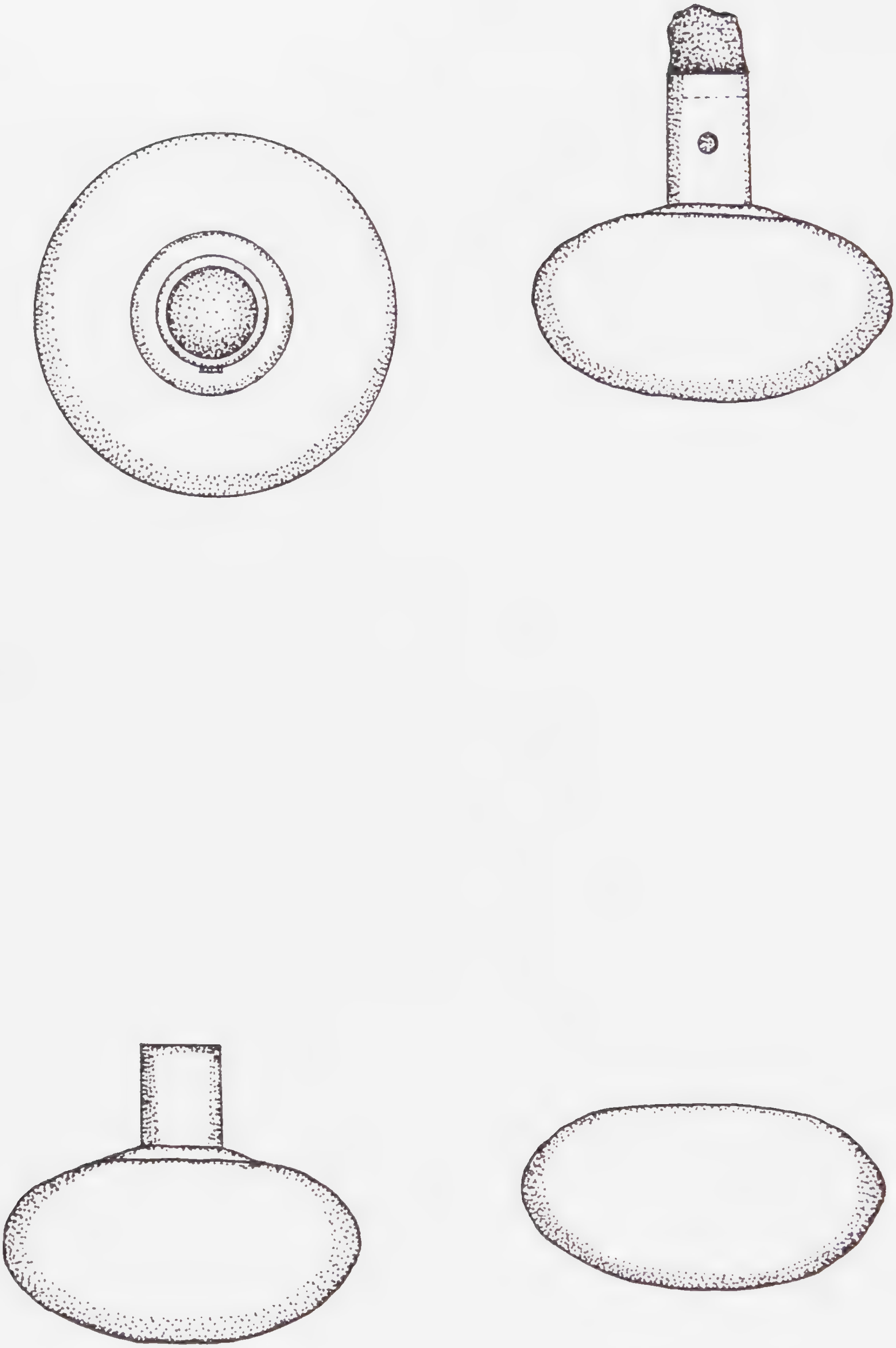


Fig.48

Door knobs

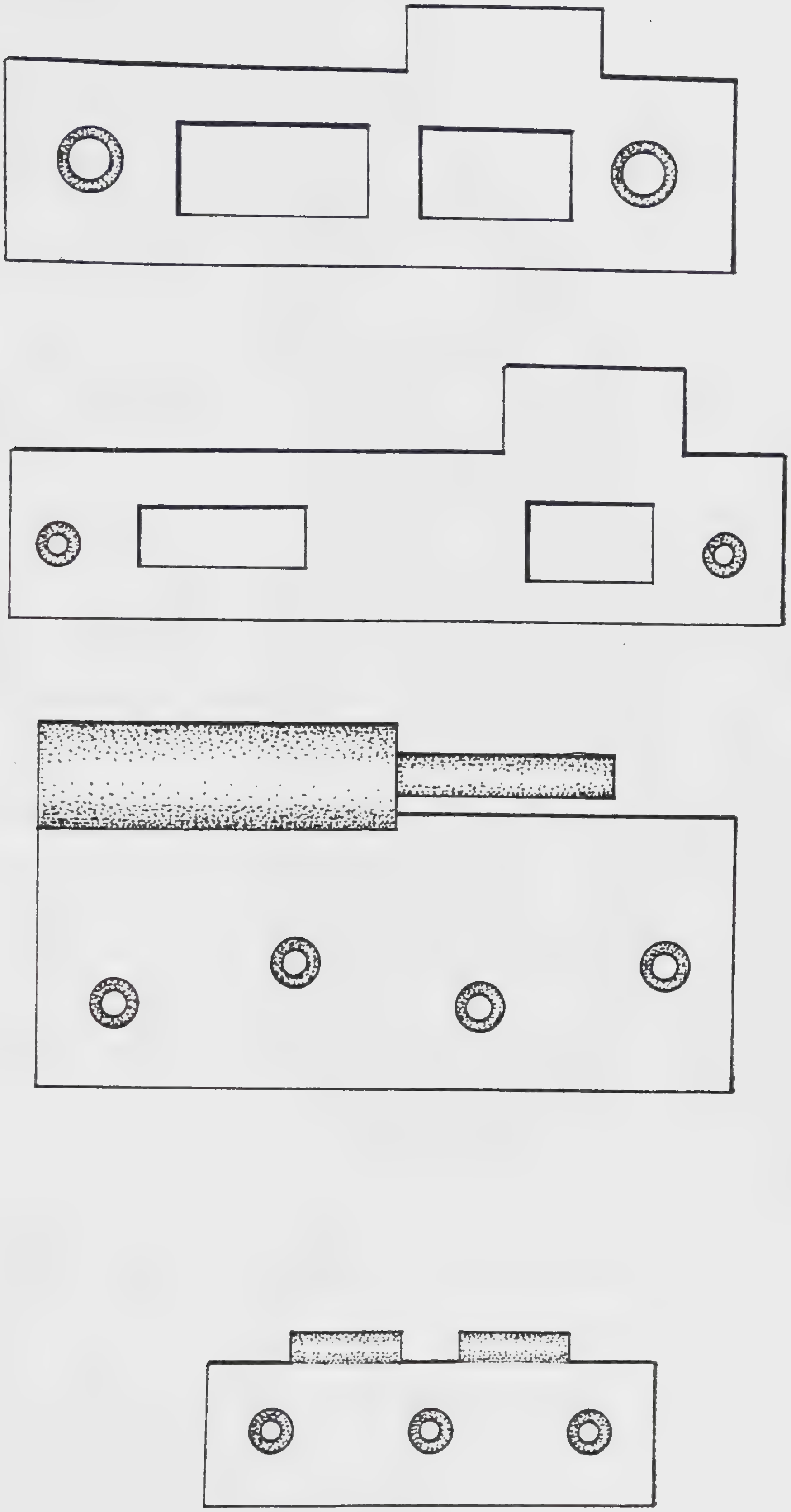


Fig.49

Hinges and lock plates

point, a portion of a crowbar, a portion of an hacksaw blade, a paint brush, and wire cutters were recovered. A coal fork fragment and a piece of a metal lawn rake were also found.

Plumbing Materials

Very few items of material culture were found to attest to the water supply of the officers' quarters. Some pipe nuts, washers and other fittings were encountered, as well as sections of 3/4" (interior diameter) pipe, one with a 90 degree L-coupling. The steel water pipe running east to west in the 1979 excavation was intrusive, as were the sections of terra cotta sewer pipe, glazed on both interior and exterior, with a glaze color of 2.5YR 3/2 and a body color of 2.5YR 5/8. One section of the latter is stamped "WESTERN CLAY MFG.CO./...LAND, ORE" (Figure 50). This company is dated by Gurcke (1987:314-315) as in operation making bricks in Portland, Oregon, from 1897 to 1913. This is consistent with an interpretation placing the sewer system in association with the adjacent Spanish-American War-era noncommissioned officers' quarters.

Electrical Materials

As noted, the fort had a local power plant to generate electricity; the central power plant produced 220 volt direct current distributed over a three-wire system. About 12 years later, in the late summer of 1922, the fort was connected to a commercial power supply from Pacific Power and Light. Most of the artifacts in this category would post-date the 1910 construction of the central power plant.

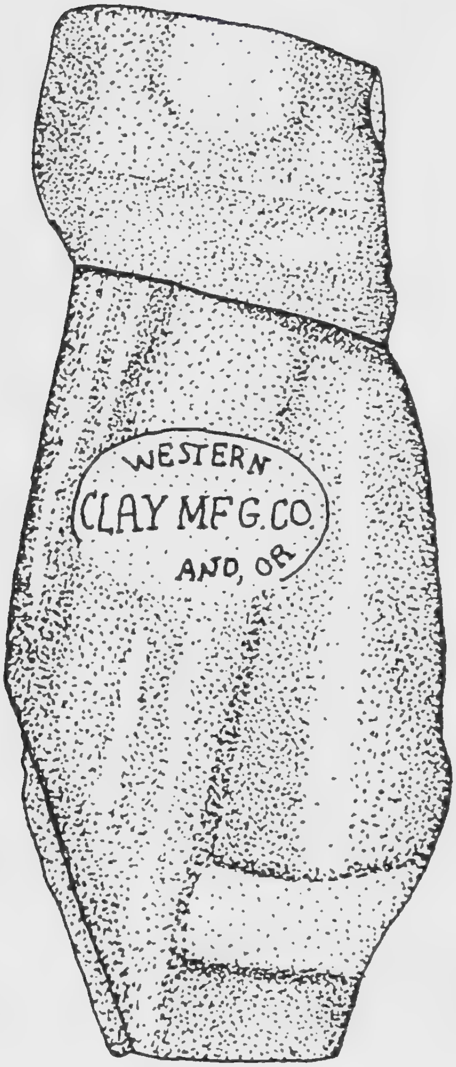


Fig.50
Sewer pipe manufactured in Portland, Oregon

A large number of white porcelain insulators was recovered from the site, of 10 different types based on morphology and function (Figures 51, 52 and 53). These insulators would have been for communications lines, or more likely, electrical service. The wiring was probably exterior, with knobs to separate the poorly insulated wires. The first type of porcelain insulator is a two-wire cleat, with holes for nailing into a wall or post. The insulators (N=3) are rectangular with rounded ends, and a manufacturer's mark of "U.S.Co.", indicating that it was made by the Utility Services Company of Allentown, Pennsylvania (Lehner 1988:587). The second type of insulator (N=12) is a three-wire cleat, rectangular, with a manufacturer's mark of "G.E.C.9172", indicating that it was made by the General Electric Company in Schenectedy, New York (Lehner 1988:584). This is a two part cleat, and several pairs were found intact. One example of the third type was found. It is rectangular in shape with rounded ends, and within a diamond on the top "DPC..", probably manufactured by the Davidson Porcelain Company of East Liverpool, Ohio (Lehner 1988:583).

The fourth type was also represented by only one example. It is a cylinder with a groove for attachment of the wire and a central nail hole, and a fragmentary manufacturer's mark of "...ONT". The fifth insulator type is a hook type for support of a single wire. It is represented by four complete specimens and fragments of a fifth. Type six is cylindrical (diameter 29mm), with a nail hole in the center, sunken center, and two ribbed

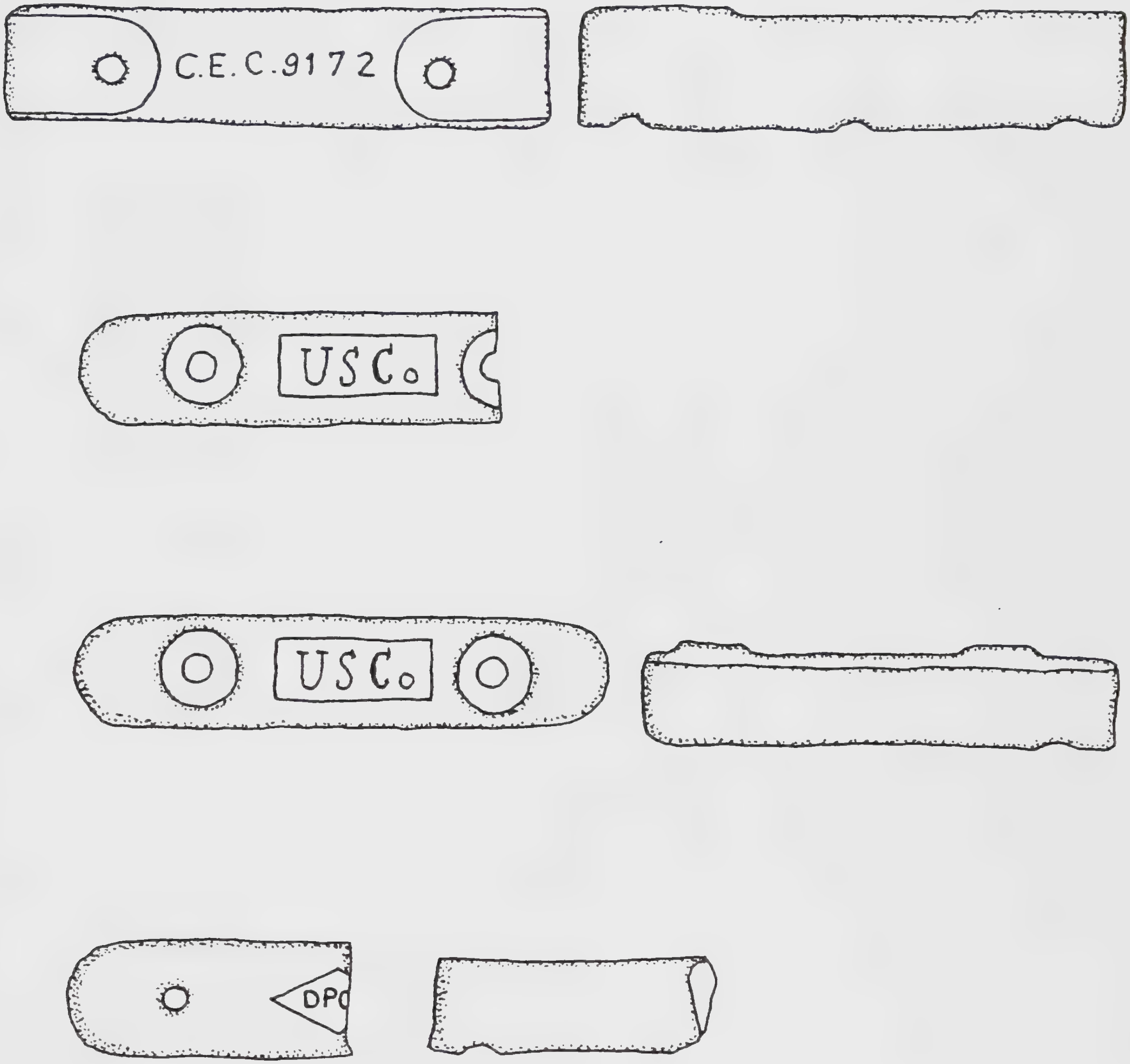


Fig.51

Porcelain insulators

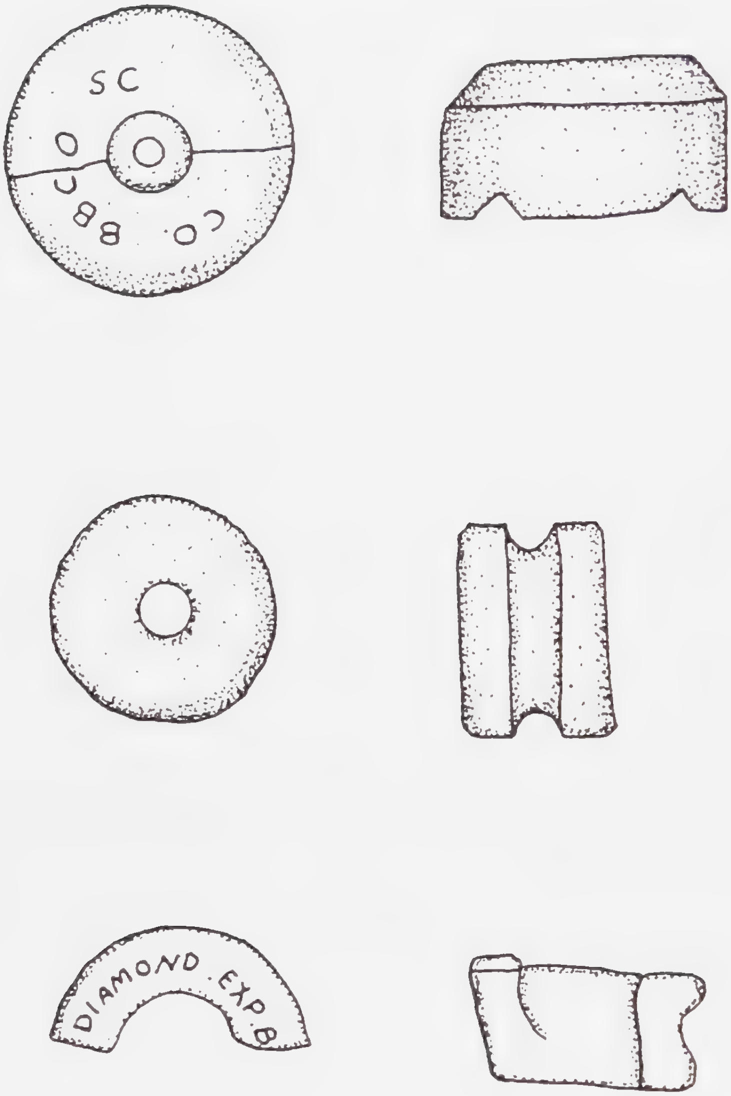


Fig.52

Porcelain insulators

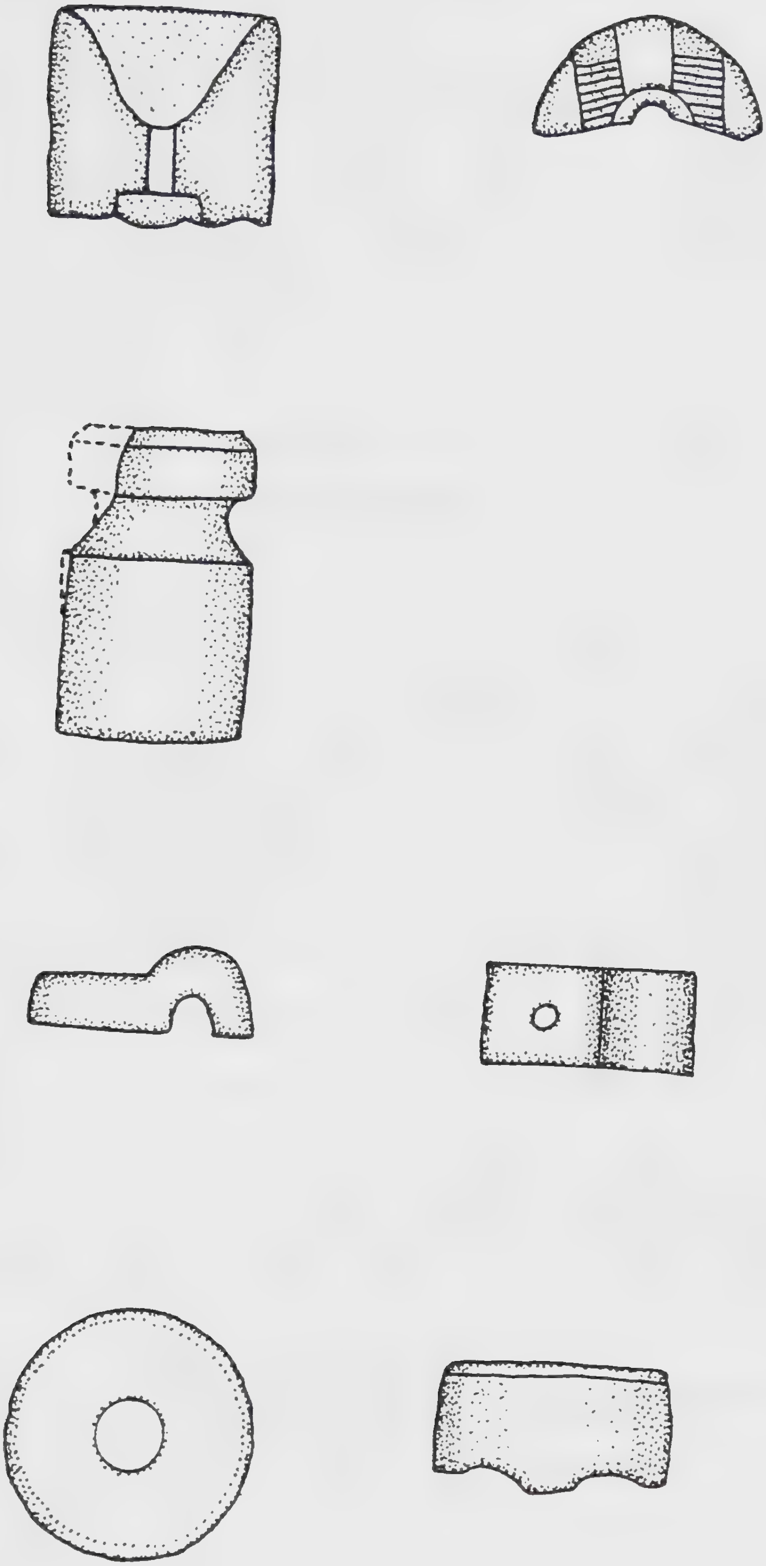


Fig.53

Porcelain insulators

wire grooves (N=2). The inscription on the bottom says "CAT.6580". Type seven (N=3) is also cylindrical, with a nail hole, 29mm in diameter, but half the height of type six. Type eight is similar to type seven, though wider (diameter 39mm), and with manufacturer's marking "BB CO SC...CO.". Only one example of this type was found. Type nine is an irregular arc shape with an exterior groove, and the marking "DIAMOND.EXP.B" on the top (N=1). Type ten is torus-shaped with a groove around the circumference and a nail hole through the central opening (N=1). Several of these insulators are illustrated in Figure 53.

Other electrical items include seven standard screw-in light bulb bases, two with glass filament holders. One of the latter has, within the glass tube, a paper with a number of patent dates, the most recent being "APR 28 03". One miniature threaded light bulb was encountered in the excavation. Two white glazed porcelain rotary switch bases were also found, one marked "3054" and the other "GE Co.". A copper socket was recovered, with the inscription "500-250 VOLTS/GENERAL ELECTRIC CO".

A standard screw-in fuse was found, with "THE BRYANT ELECTRIC CO" on the top, and on the contact base, "125V 15-A". An adapter for plugging in a standard two-blade plug to a screw-in socket was found, with the partial inscription "ARROW/660V..." on the top (Figure 54).

A number of pieces of solid copper electrical wire were found, in three wire diameters, some with insulation. One piece

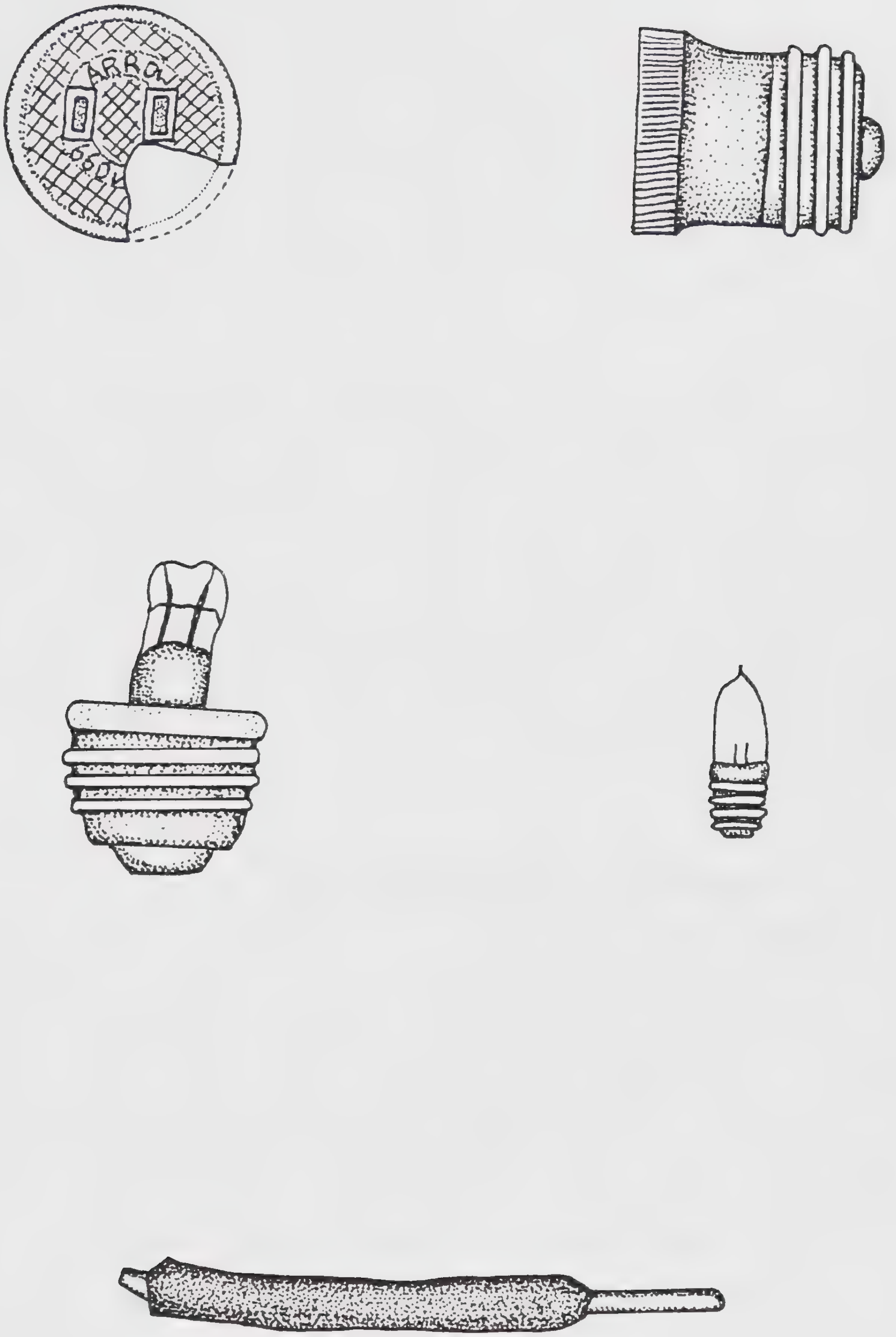


Fig.54

Electrical system artifacts

of 2mm diameter wire was found, 171mm in length. The two pieces of 3mm diameter wire had length of 106 and 249mm. The wire with a diameter of 4mm was found in lengths of 57, 76, 81, 84, 128, 184 and 745mm, and when insulation was present, had an outside diameter of 8mm.

The electrical materials, wire, switches, insulators, and so on, were distributed throughout the site, and a portion of this category could have been refuse from the Spanish-American War-era noncommissioned officers' quarters. Many of the artifacts in the preceding two categories (Plumbing and Electrical) would be included in "Utilities" under group services in Sprague's (1980-81) classification.

AMMUNITION AND RELATED ITEMS

A wide variety of ammunition is found in historical archaeological sites in the Northwest, especially in military sites, and even in a domestic context at a military site, including Fort Stevens. The occupants of this household may have maintained armament for duty, subsistence or sport, or a combination of these purposes. Even so, the quantity and diversity of metallic cartridge casings, bullets and shotgun shells are surprising in this context, and may be explained in several ways. Much of the ammunition is of military origin, but a good deal was civilian and obtainable from a variety of sources. Figures 55 and 56 illustrate the horizontal and

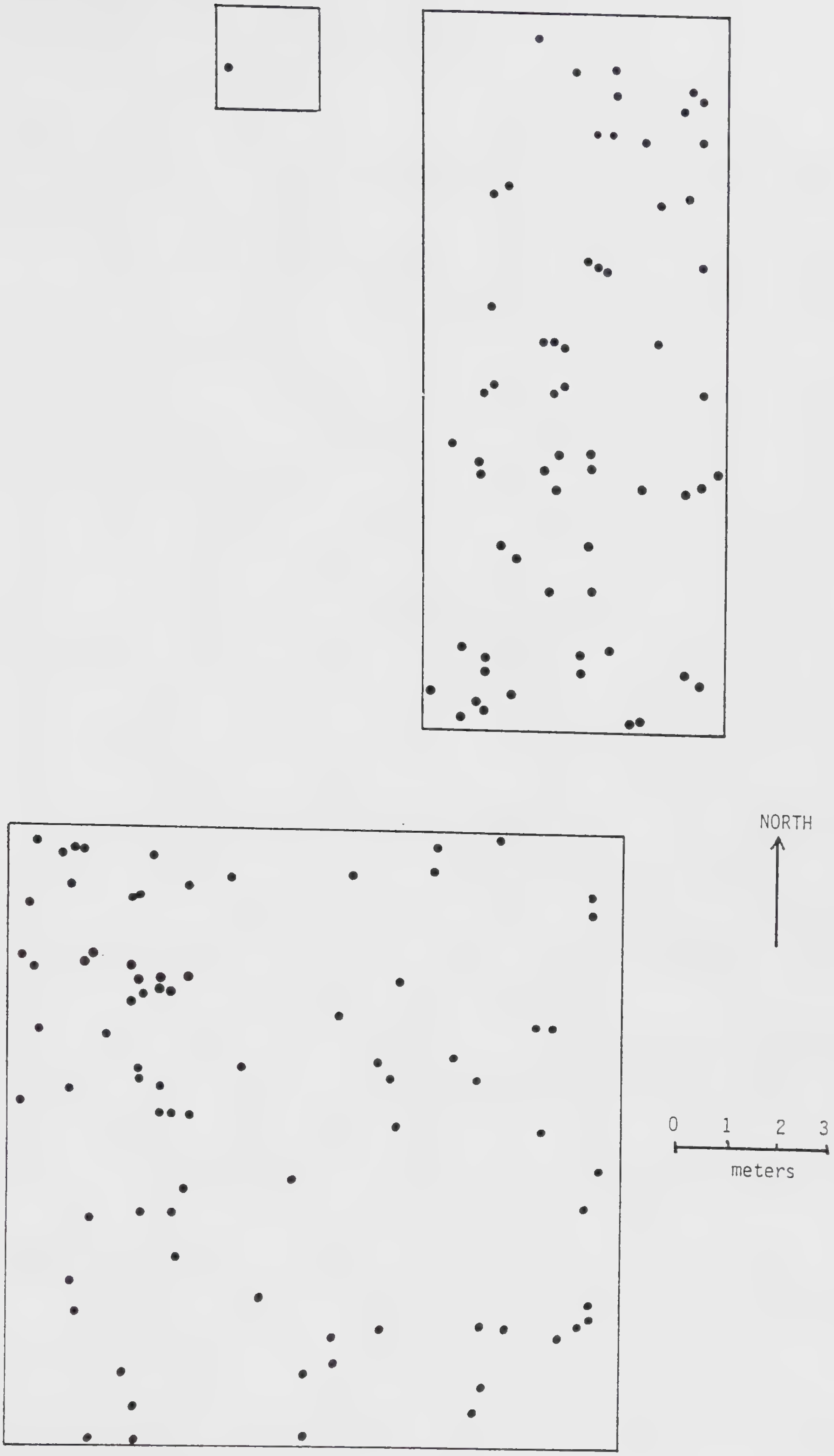


Fig.55

Horizontal distribution of cartridge casings and bullets

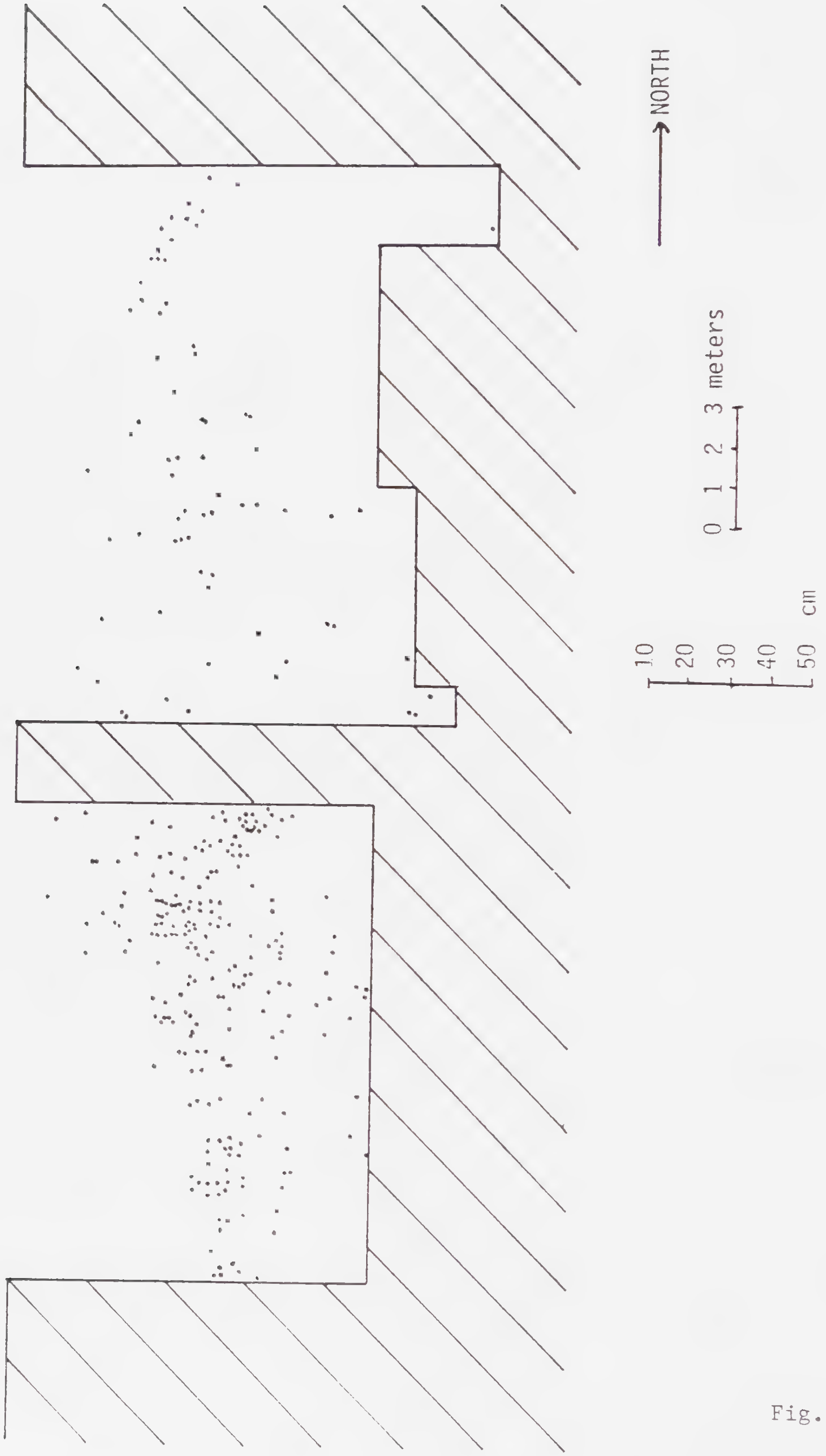


Fig.56

Vertical distribution of cartridge casings and bullets vertical distribution of metallic cartridge casings, bullets and complete rounds.

The metallic cartridge casings are rim-fired, with either an external- or, more recently, an internal-primer and vary in size from .22 to .50 caliber. The rim-fired cartridge was invented in 1845 in France but was not in general use until 1857, with the development by Daniel Wesson for the Smith and Wesson Co. First Model revolver in .22 short caliber. The design is still in use today, and more .22 caliber cartridges have been produced than any other single known cartridge. Rim-fire metallic cartridge development continued: "The New Haven Arms Co. began manufacture of the .44 Henry cartridge in 1861 and the .56-56 Spencer round was made in quantity from 1862...Both of these cartridges were used by northern armies in the Civil War" (Barnes 1969:271). The popularity of the rim-fire cartridges of larger caliber decreased rapidly after the turn of the century.

Internal-primer center-fire cartridges were first produced in the late 1850s, developed rapidly during the Civil War, and were outmoded by the 1890s with the development of external-primer center-fire ammunition. Generally, internal-primer cartridges lack headstamps and other manufacturing markings.

External-primer center-fire ammunition represents the bulk of the metallic cartridge casings found at old Fort Stevens, including the military's .45 caliber and .30-06 caliber shells, as well as ammunition of other calibers.

British and American manufacturers of ammunition measured the cartridge caliber in hundredths or thousandths of an inch, generally based on bore of the barrel, diameter of the barrel groove, diameter of the bullet or the diameter of the inside of the cartridge casing mouth. The cartridge may be designated by one of these variables as well as casing length and case type, that is, rimmed, rimless, semi-rimmed or belted. The complete round, with cartridge casing, primer (if any), load, and projectile may designated according to the caliber, the weight of powder, type of gun for which it was intended, or a number of other variables.

Notwithstanding this diversity in nomenclature, ammunition may be very useful in the study of historic sites. This is especially true with military ammunition because of the rapid development in munitions during the last century. The head of the cartridge (facing the firing pin) is often stamped with the caliber and the name or initials of the manufacturer. American military cartridge casings generally have a headstamp containing the initials of the ordnance plant were it was manufactured and the date of manufacture (Figures 57 and 58).

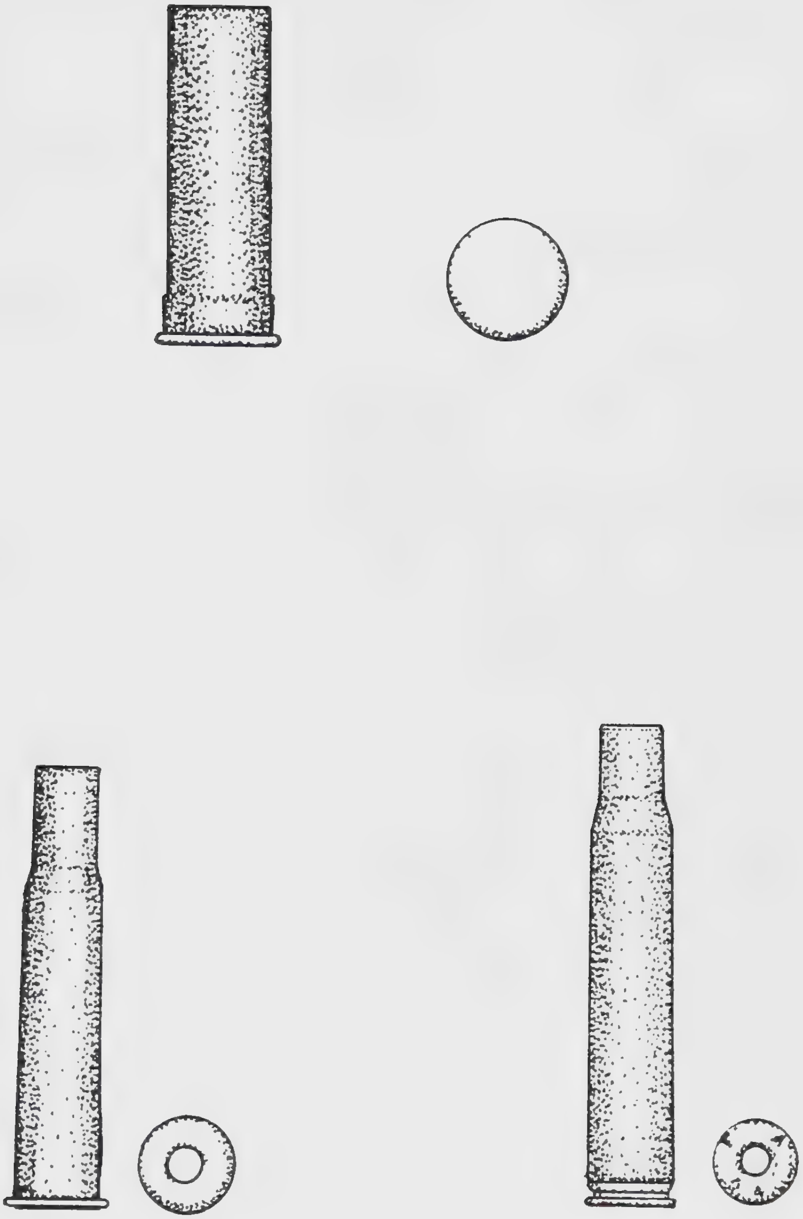


Fig.57

Metallic cartridge casings

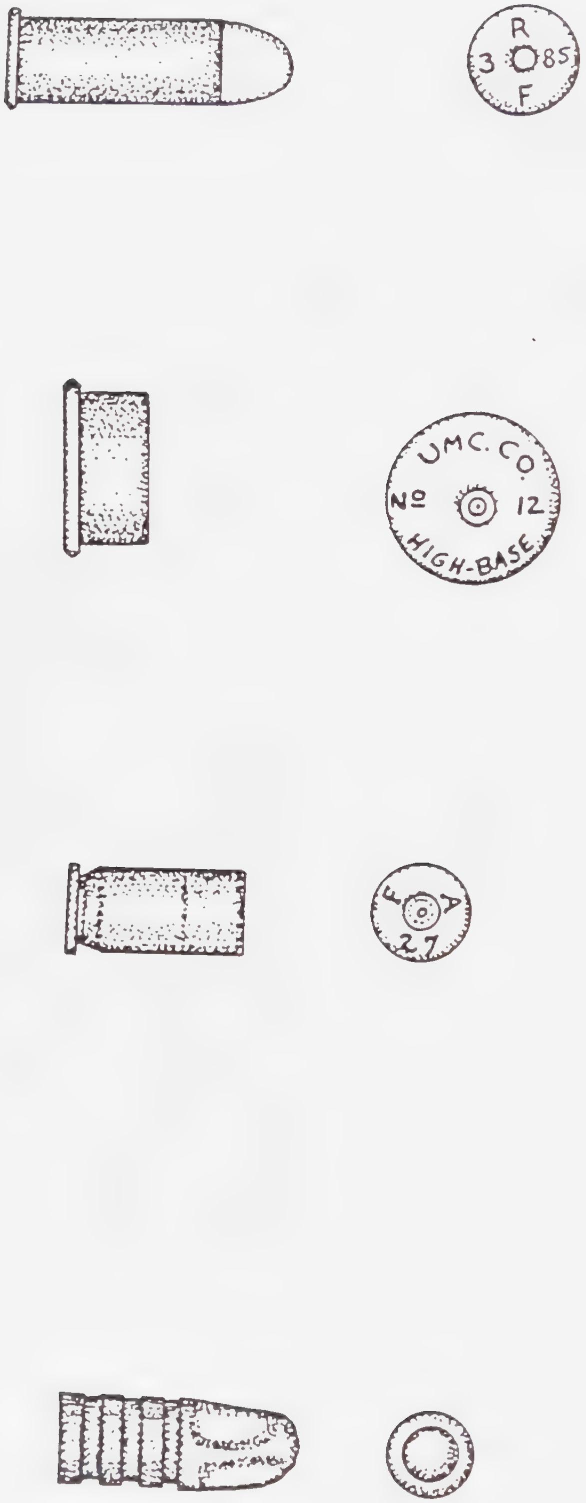


Fig.58

Metallic cartridge casings and mutilated bullet

The following table lists the headstamps and manufacturers of the marked military and sporting ammunition found at Fort Stevens:

Rifle and Pistol Cartridges

Headstamp	Manufacturer
FA	Frankford Arsenal, Philadelphia (The major U.S. ordnance plant)
USC Co	United States Cartridge Co., Lowell, Mass. (Post-1986)
RA	Remington Arms Co.
RA H	Remington Arms Co. Hoboken, New Jersey, plant
WRA Co	Winchester Repeating Arms Co., New Haven, Conn. (Mark used as early as 1866 but discontinued ca.1940)
UMC	Union Metallic Cartridge Co., Bridgeport, Conn. (Pre-merger with Remington, dating 1867-1902)
SAVAGE	Savage Arms Corp.
H	Winchester Repeating Arms Co.
N	Nobel (England)
U	Union Metallic Cartridge Co.
P	Peters Cartridge Co. (Absorbed by Remington, dating 1887-1934)

Shotgun Shells

Headstamp	Manufacturer
Winchester	Winchester Repeating Arms Co.
U.S.	United States Cartridge Company
U.M.C. Co	Union Metallic Cartridge Co.

U.S.C. Co	United States Cartridge Co.
E.B.	Eley Brothers, LTD London, England
W.R.A. Co	Winchester Repeating Arms Co.

The following descriptive typology is based on caliber, length of cartridge and priming system and includes comments on manufacturer, date and location of manufacture where available.

Rifle and Pistol Cartridge Casings

1. Caliber .50, internal-primer (cup anvil), brass cartridge casing, length 45mm, probably .50-70, the official U.S. military rifle cartridge from 1866 to 1873. The first center-fire cartridge in general use by the U.S. military (Barnes 1965:115). All examples lack headstamp markings.
   N=42
2. Caliber .50, internal-primer (cup anvil), brass cartridge casing, length 34mm. The casing length is the only dimensional differences from the preceding group.
   N=1
3. Caliber .45, internal-primer, brass cartridge casing, length 54mm. The U.S. government's ordnance department decided in 1873 that the .50-70 government cartridge should be replaced with a smaller caliber round. The Frankford arsenal in

Philadelphia designed the .45 Government, better known as the .45-70, and production began in September of 1873. It was not until March of 1877 that use of a headstamp became common practice; none of the .45-70 cartridges from Fort Stevens has a headstamp. External-primer rounds officially replaced the earlier models in 1882, and the .45-70 as the "official" military cartridge was itself replaced a decade later by the .30 caliber Krag (Bearse 1966:156). N=15

4. Caliber .30, external-primer, brass cartridge casing, .30-06 Springfield. "Hardly any description is needed of this American cartridge. Used since 1906 ('06'), through two World Wars, it is the best known of any military cartridge. The Springfield rifle for which this ammunition was developed is still considered one of the finest and most accurate military rifles in the world (Logan 1948:117-118)." This cartridge was introduced in 1906, based on a case design from the 30 caliber Government 1903. The cartridge casings from Fort Stevens all have headstamps indicating manufacturer and date of manufacture.

.30-06 Springfield Headstamps

FA	1	10	Frankford Arsenal	January	1910	N=1
FA	5	10	Frankford Arsenal	May	1910	N=2
FA	6	04	Frankford Arsenal	June	1904	N=1
FA	4	09	Frankford Arsenal	April	1909	N=1
FA	2	08	Frankford Arsenal	February	1908	N=1

RA		18	Remington Arms Co.	1918	N=3
RA	H	18	Remington Arms Co. (Hoboken Plant)	1918	N=1
WRA		18	Winchester Repeating Arms Co.	1918	N=1
UMC	11	05	Union Metallic Cartridge Co.	November 1905	N=1
USC Co		18	United States Cartridge Co.	1918	N=1

Several of these cartridge casings had been mutilated (Figure 59).

5. Caliber .30 external-primer, brass cartridge casing, shouldered, plated, length 59mm, Krag-rimmed. This cartridge, also called the .30 Army or .30 Government, was introduced in 1892. One of these cartridges has a headstamp indicating that it was manufactured in January of 1898. N=2

6. Cartridge casing, .38 caliber, total length 35mm, cartridge length 26mm. Probably .38 long Colt, used in the first side-swing cylinder Colt to be adopted by the U.S. Army, the Colt .38 double action revolver, models of 1892-94-96 (Logan 1948:126). One of these cartridges is unfired, and bears a headstamp "F A 5 03" indicating its manufacture at the Frankford Arsenal in May of 1903. The other cartridges, all of which have been fired, have the following headstamps (N=6):

F		8	9
F	A	8	10
F		4	84
		8	9
F			

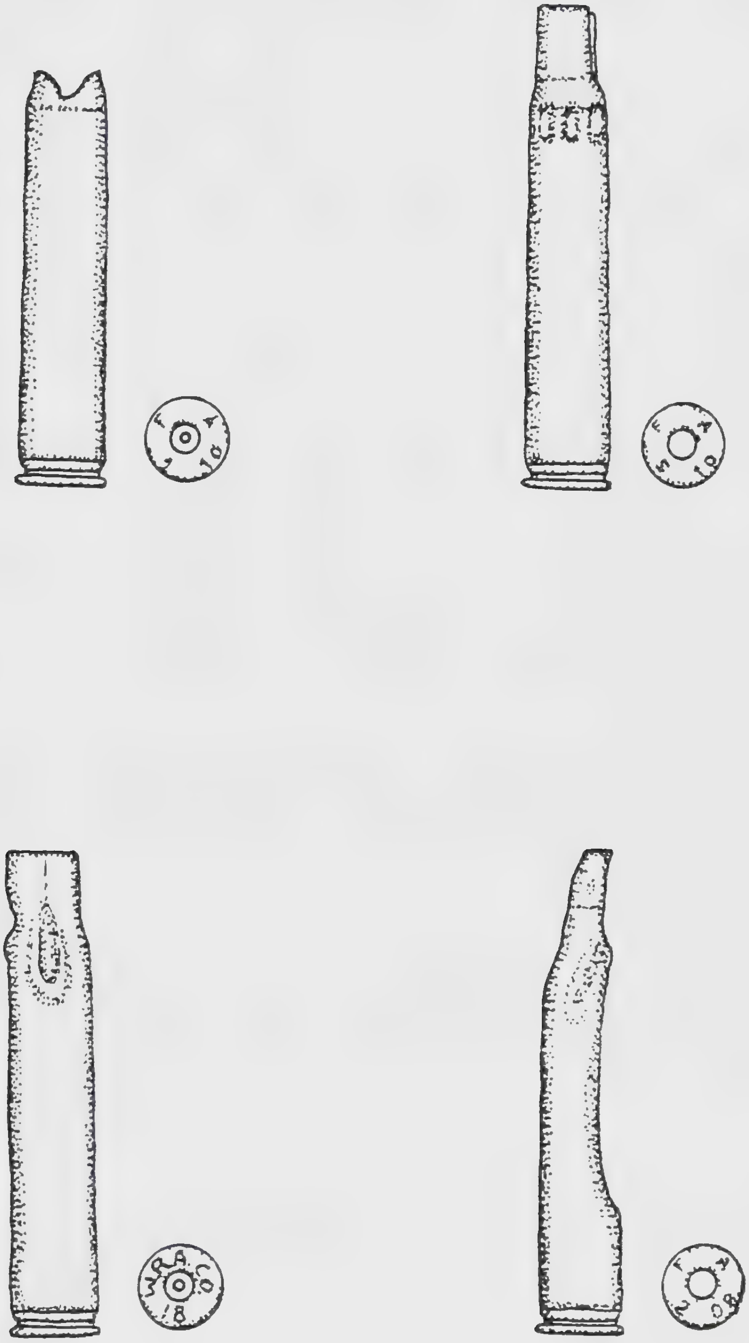


Fig.59

Mutilated metallic cartridge casings (.30 caliber)

7. Cartridge casing, .45 caliber. The U.S. Army adopted the .45 caliber Colt automatic as the official side arm in 1911. The brass-cased .45 cartridge was also used in the model 1917 revolver during the first World War (Logan 1948:140). All of the examples from Fort Stevens had been fired, and two had a bullet replaced in the empty casing. The following headstamps were present on these cartridges (N=27):

WRA Co	3	13	N=17
W		17	N=1
F A	10	14	N=2
F A		27	N=2
F A		26	N=1
F A		28	N=1
F A	3	12	N=1
F A	2	13	N=1
F A	3	7	N=1

8. Cartridge casing, brass, fragmented, center-fire, unfired. No headstamp. Probably early "balloon head variant" of the .45-70.

   N=1

9. Cartridge casing, brass, rim-fire, length 24.5mm. Probably .44 caliber.

   N=1

10. Cartridge casing, brass, center-fire, length ca. 23mm. Probably .44 caliber, for the Smith and Wesson revolver.

    N=3

11. Cartridge casing, brass, .38 caliber, unfired with bullet, total length 30mm. Headstamp information: WRA Co 38 S&W.
N=1

12. Cartridge casing, brass, .32 caliber, unfired with bullet, total length 24.5mm. Headstamp information: UMC 32 S&W.
N=1

13. Cartridge casing, brass, rim-fire, .38 caliber, length 19mm. Probably .38 Remington. Headstamp information: H, indicating manufacture by Winchester Repeating Arms Co.
N=1

14. Cartridge casing, brass, .25 caliber, external-fire, fragment. Headstamp information: SAVAGE 25-20 Hi.P.
N=1

15. Cartridge casing, brass, .44 caliber, length 33mm. Headstamp information: W.R.A.Co 44 W.C.F. This cartridge was used in both the Model 1873 Winchester rifle and Colt single action revolver "Frontier Six Shooter" and was manufactured by the Winchester Repeating Arms Co., New Haven, Conn.
N=1

16. Cartridge casing, brass, .32 caliber, rim-fire, length 20mm No headstamp.
N=1

17. Cartridge casing, plated brass, .38 caliber center-fire, length 26mm. Headstamp information on the two specimens: F 4 94 and 8 9. This is probably the .38 S&W long, very

similar to those unplated shells in description #6 above.

N=2

18. Cartridge casing, brass, .25 caliber, rim-fire, length ca. 16mm. Headstamp information: U, indicating manufacture by the Union Metallic Cartridge Co., prior to its merger with Remington.

    N=1

19. Cartridge casing, brass, .22 caliber, short, length 11mm. One example has been fired, yet retains the bullet, possibly representing a misfire. This ammunition is an example of the earliest commercially produced and self-contained metallic cartridges. While the round was first developed in 1857 by Daniel Wesson for the Smith and Wesson First Model revolver, it is still being manufactured and widely used.

    Headstamp information: N (N=3), H (N=1), U (N=2), and none (N=1).

20. Cartridge casing, brass, .22 caliber, long, length 15.5mm. The .22 caliber long was originally developed in 1871 as a black powder revolver load, and is still in production. Headstamp information: U (N=2), P (N=1), none (N=1).

21. Cartridge casing, brass, .22 caliber, long-rifle, length 20mm. The headstamp on the only example of this round is "H" which indicates manufacture by the Winchester Repeating Arms Co.

    N=1

22. Cartridge casing, brass with bullet, unfired, .45 caliber, total length 36.5mm, cartridge length 28mm. This is identified by Bearse (1966:51) as a Frankford Arsenal headstamp on ammunition for the .45-70-500 grain rifle. Headstamp: R F 3 85.

N=1

23. Cartridge casing, brass, Berdan-primer, .38 caliber, length 27mm. This is probably a .38-40 handgun round. No headstamp.

N=1

Shotgun Shells

1. Shotgun shell base, brass, 12-gauge. Headstamps:

Winchester	No.12	Ranger	Made in USA	N=1
	No.12	U.S.	Ajax	N=1
	U.M.C. CO	No.12	High Base	N=1
	U.S.C. CO	No.12	Climax	N=1
	No.12	U.S.	Climax	N=1
	U.M.C. CO	No.12	Magic	N=1
	W.R.A. CO	No.12	Rival	N=1

2. Shotgun shell, brass, 10-gauge, length 66.5mm. No headstamp.

N=1

3. Shotgun shell base, brass, 20-gauge. Headstamp information: Winchester No.20.

N=1

Bullets

1. Minie ball, lead, .58 caliber, 3-groove, length 25mm.

N=1

2. Lead bullet, round nose, 2-groove, length 17mm, diameter 8mm.

N=2

3. Lead bullet, 3-groove, hammered, length 32-33mm, diameter 11.5mm, for .45-70 cartridge.

   N=4

4. Lead bullet, 3-groove, mushroomed, diameter 11.5mm, for .45-70 cartridge.

   N=11

5. Lead bullet, copper-jacketed, round or pointed, .30 caliber.

   N=13

6. Lead bullet, 2-groove, flat nose, length 16.5mm, diameter 11.5mm. Probably .45 caliber.

   N=1

7. Lead bullet, 2-groove, round nose, length 17.5mm, diameter 9.5mm.

   N=1

8. Lead bullet, 3-groove, mushroomed, diameter 13mm, .50 caliber.

   N=6

9. Lead bullet, copper-jacketed, round nose, length 17mm, diameter 11mm, .45 caliber U.S. Three of these bullets have been coated with red lacquer.

   N=23

10. Copper-jacket from fired .30 caliber bullet.

    N=1

11. Lead bullet, .22 caliber

    N=2

12. Lead shot. Diameter:

8mm (N=2), 7mm (N=2), 4.5mm (N=1), 3mm (N=1)

Miscellaneous

1. Clip for .30-06 Springfield, brass, with spring, length 60mm, holds five cartridges.

   N=10

2. Primer for center-fire, externally-primed cartridge.

   N=1

3. Percussion cap, copper, length 6mm, diameter 6mm. These caps, cylinders of thin copper, split in four places were introduced in 1816 as an improvement to the flintlock spark system. While they were commonly used in the western U.S. by the 1830s, and continued through the Civil War, they became obsolete by the 1870s. All four present examples are known as "hat type" for their resemblance to a stovepipe hat.

It is not unusual to find ammunition in a military site, even within a domestic context such as the officers' residence. This is especially true given the long period of occupation of the fort by a number of different military units. However, the variety of ammunition found at this site is very interesting. For example each of the nine shotgun shells was of a different type, with no duplicates found. This diversity suggested an interesting hypothesis: the ammunition found in the officers' quarters at this site represents a collection, and the variety of materials shows an attempt by the collector to include many different types of military and sporting rounds. It may be possible to test this hypothesis with a simple calculation of average number of cartridge casings per type. A purely utilitarian assortment of ammunition would have few types with many examples of each, while an assembled collection would be expected to have many types with a few examples of each. At Fort Stevens, there were 144 cartridge casings found, representing 37 different types of ammunition (not counting different dates of manufacture for the same type of cartridge, but including different manufacturers). This represents an average of 3.89 cartridges per type. Other historic archaeological sites will have different ratios of types to cartridges, and may provide some insights into the diversity of ammunition at different sites.

Some earlier sites in western Oregon have very little in the way of metallic cartridge casings and thus are not very useful in testing the hypothesis. The townsite of Champoeg, an 1830-61 village on the south bank of the Willamette River, yielded two cartridge casings in addition to percussion caps, balls and shot and a gunflint. The casings are identified as a rim-fire cartridge case manufactured by Winchester Repeating Arms Company and a casing with a headstamp of "PETERS .32 S&W" (Speulda 1988:94). Similarly, the Willamette Mission, dating from 1834-41, contained only percussion caps, balls and shot and gunflint

(Sanders 1983:211-219). The Stauffer-Will farmstead, begun in 1869 in the Willamette Valley as part of the Aurora Colony was archaeologically investigated in 1979. Included among the artifacts were 55 metallic cartridges of 24 types, for a ratio of 2.29 artifacts per type (Minor, Jacobs and Tilton 1981:98-100). Fort Mackinac, in Michigan, provides a better comparison. The Custer Road Dump Site associated with this fort dates from 1876 to 1895 and contained both a large number and variety of metallic cartridge casings (Brose 1967:44-47). Approximately 667 cartridges were found, representing 16 different categories, or 41.69 rounds per type.

At Fort Bowie, in Arizona, 2117 metallic cartridge casings were recovered, of 110 different types, or 19.25 rounds per type (Herskovitz 1978:47-52).

The Silcott Site, a farming community in southeastern Washington state, was a functioning village for several decades spanning the turn of the century. There were 144 cartridges found of 49 types, for a ratio of 2.94 to 1.

Excavations at Fort Townsend in northwestern Washington state yielded very few examples of ammunition. The site was a military post from 1856 to 1895, and excavations provided four recent .22 shell casings from the disturbed upper strata in the area of the commanding officer's house (no headstamps mentioned) and two brass .45-70 cartridge casings, one each from the stables and barracks (Thomas 1977:107). Because no headstamp information is recorded, it isn't possible to distinguish separate manufacturers or brand names.

On the Oregon coast, testing at Fort Orford (1852-1880) yielded only four lead bullet fragments (Minor, Beckham and Greenspan 1980:63). Excavations at Kanaka Village/Ft. Vancouver Barracks encountered a number of metallic cartridge casings. The village was established ca.1827 for employees of Hudsons Bay Company, but the cartridges represent the U.S. Army's presence, which extended from 1849 to the present. Ammunition pertinent to the present study includes 81 metallic cartridge casings of 29 types, a ratio of 2.79 to one (Chance and Chance 1976:187-192). Recent excavations at Fort Walla Walla encountered cartridges near structures and in a dump context. While the site was a military post from 1858-1910, the dump dates to ca.1890. Eleven cartridge casings were found, of nine types (Sappington and Wyss 1988:44-47).

The following table lists the pertinent information about metallic cartridge casing diversity at this small sample of sites.

Site Name	Site Type	Number of Cartridges	Type	Ratio
Fort Stevens	Fort	144	37	3.9
Fort Walla Walla	Fort	11	9	1.2
Fort Vancouver	Fort	81	29	2.8
Fort Townsend	Fort	6	not available	
Fort Mackinac	Fort	667	16	41.7

Fort Bowie	Fort	2117	110	19.2
Silcott	Village	144	49	2.9
Stauffer-Will	Village	55	24	2.3

Thus, Fort Bowie, Arizona and to an even greater extent Fort Mackinac, Michigan, represent the utilitarian end of the spectrum. Generally, fewer specimens are reflected by fewer types. The closest comparisons to Fort Stevens are found at the town of Silcott and at Fort Vancouver. This brief comparison of sites in terms of cartridge diversity is interesting but inconclusive in terms of the stated hypothesis.

OTHER CULTURAL MATERIALS

Animal Related Artifacts

The artifacts in this class are those associated with horses, which were the prevalent form of transportation in the fort's early days. Two steel rings and a large steel snap swivel (length 151mm, snap width 41mm, clevis width 62mm) may represent harness components (Figure 60). In addition, there were two horse shoes, a possible pony (or small horse) shoe, and what is probably a portion of a mule shoe. All of the shoes had rectangular nail holes, but none of these was set into a fuller or crease. Length of the horse shoes (heel to toe) was 143 and 139mm, and maximum widths were 123 and 155mm, respectively. The pony shoe's length was 114mm and its width was 100mm. The mule

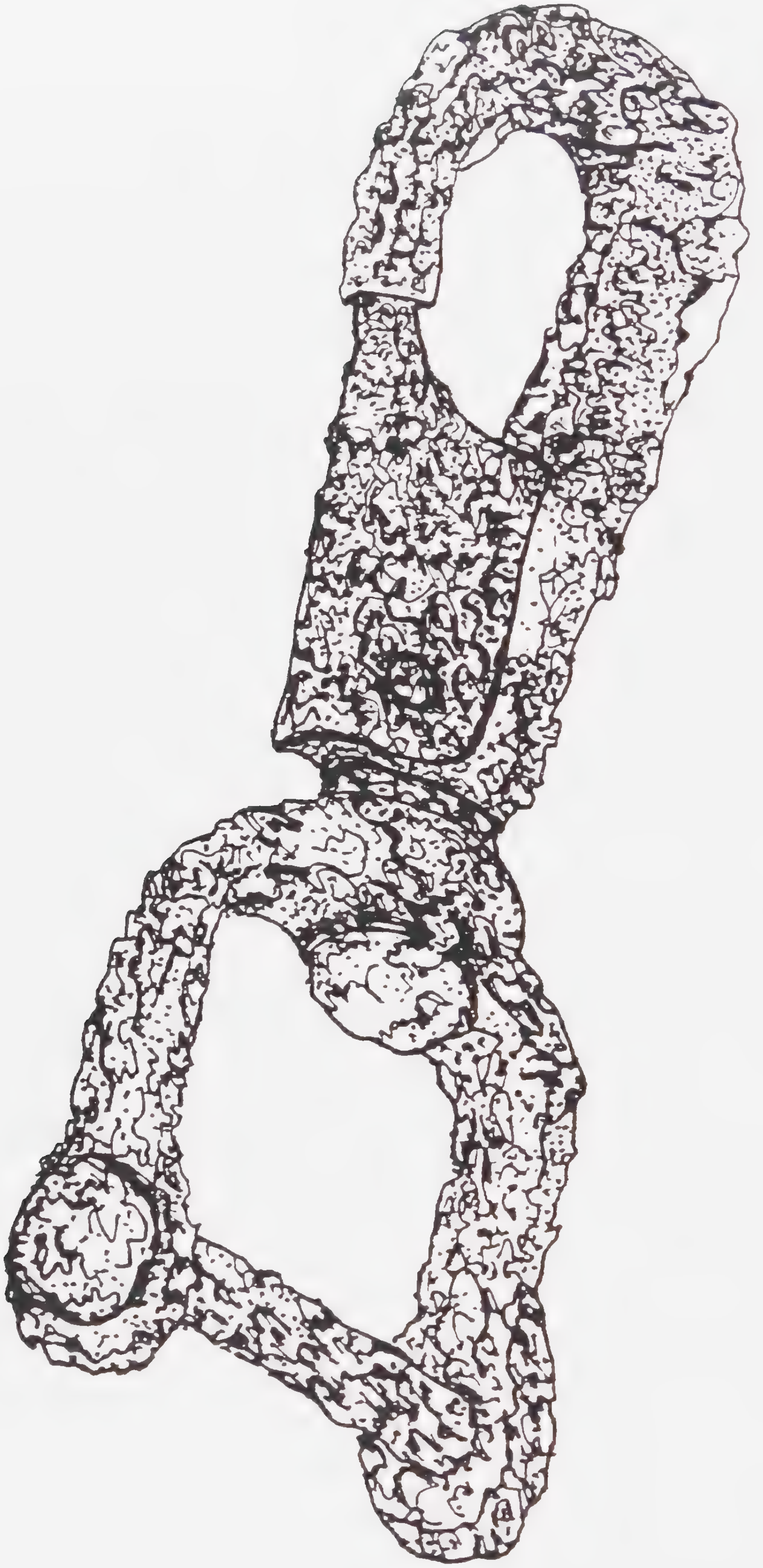


Fig.60

Steel snap swivel

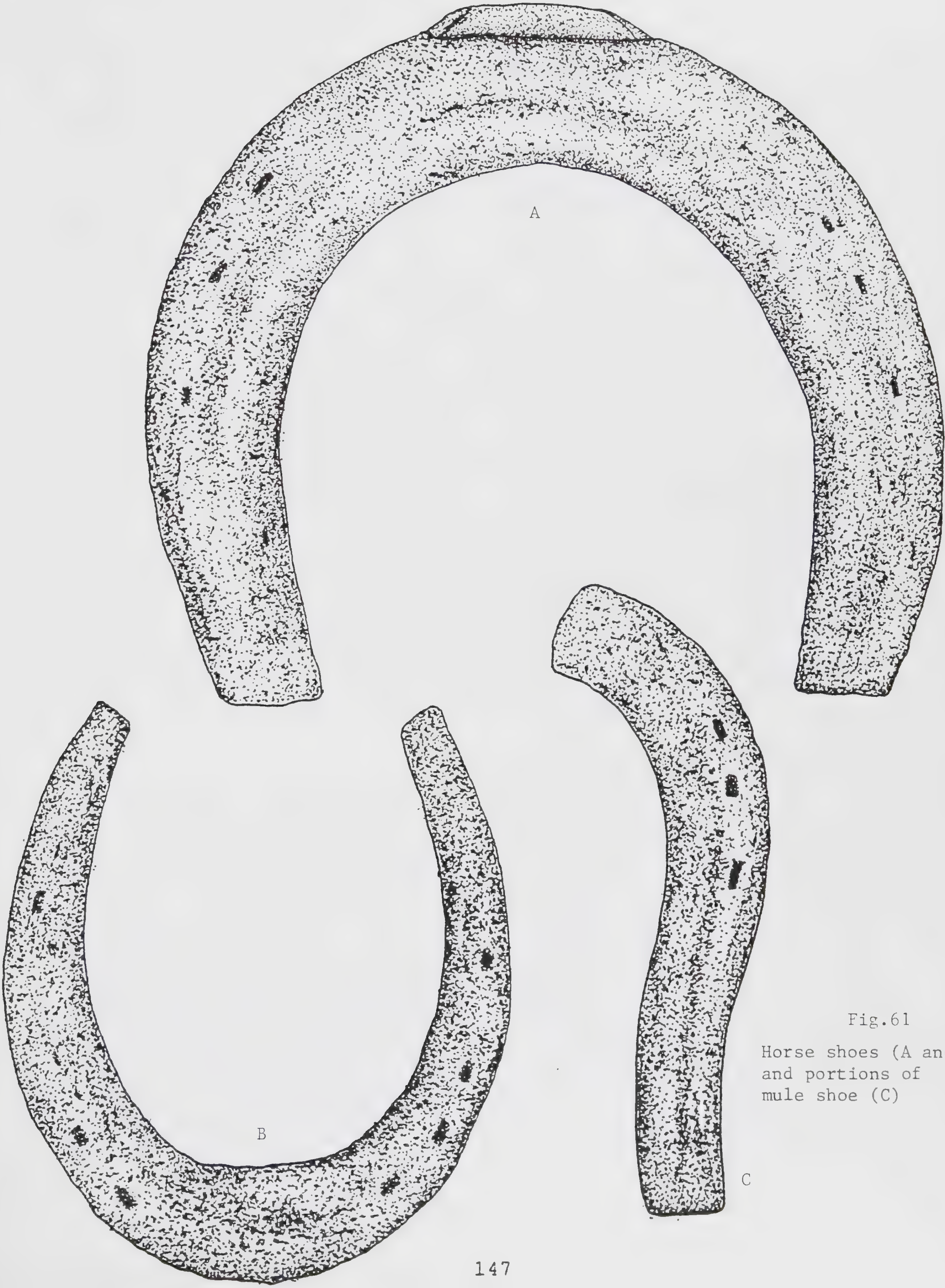


Fig.61

Horse shoes (A and B)
and portions of
mule shoe (C)

shoe was less that one-half complete (Figure 61). No other horse-related items were found, although some unidentified iron and steel fragments may represent animal equipment.

Automobile Related Artifacts

Several items were placed in this category, including a rubber floor mat fragment and a brake light lens, faceted in yellow and red. Five bayonet-mount light bulb bases (diameter 15mm) and an in-line fuse tube were also attributed to automobile uses. A copper spark plug compression ring (outside diameter 24mm) was found, as was a large spark plug, with a knurled knob over a threaded stud on top. The white porcelain insulator has printed in green "AC/TITAN" (Figure 45A). A similar, though not identical "AC/TITAN" spark plug was found in excavations at the town of Silcott, Washington. The AC spark plug brand has been used since 1915 (PPAA 1934:39). A rubber inner-tube patch was also found.

Miscellaneous Artifacts

A number of artifacts are included in this category because they can't be comfortably assigned to units within the functional classification. A variety of iron and steel pieces in a very rusted state were simply too corroded to identify. There were also several pieces of lead which had been hammered for some reason. Some of these had been originally pipes of lead, and others were in the shape of truncated cones. The reason for the disfigurement remains unknown. The following table lists the hammered lead pieces.

Description	Length	Width/Diameter	Weight
Solid cone	43mm	29-12mm	183 grams
Pipe	63mm	18mm	117 grams
Pipe, beveled ends	39mm	13mm	35 grams
Pipe	51mm	41mm	144 grams
Pipe	35mm	12mm	28 grams
Patch w/10 holes	61mm	39mm	34 grams

Other metal items in this category include wire bales (handles) for buckets, loops of steel wire, disks and tubes of steel with an unknown function. Several pieces of rubber tubing were recovered from the site; one piece was 19mm in length and had an outside diameter of 28mm. It may have had an automotive use. Pieces of flattened rubber tubing 16mm wide and 3mm thick were found in lengths of 158 and 132mm. Other pieces of brown and black rubber were found, as were pieces of white and pink plastic. The thin sheets of pink plastic were probably from a container. One piece of brown wax was found (41x26x12mm), as was a small sheet of mica (12x10x1mm) and fragments of cork.

FAUNAL REMAINS

The mammal bones found in the vicinity of the officers' quarters and primarily from beef cattle, with some deer and a few elk bones. The cow (Bos) is represented by a number of different bones which would have provided a variety of meat cuts. For example, the femoral shaft would, depending on the size of the cut, represent either a round roast or a round steak. Three examples of the former were found, and six of the latter. Three proximal tibia cuts also represent round steaks, while four sirloin steaks are attested to by fragments of the ilium. A sirloin steak was also taken from an ulna cut. Two scapular chuck roasts were consumed, as were two T-bone steaks represented by cut vertebrae. Less desirable cuts of meat include an arm roast and neckstew as evidenced by two vertebrae. Several larger bones, from an ox or big beef, were used for round roasts; these include one example each of vertebra, femur and tibia. Several of the cow bones were cut by a band saw, while others were hand cut.

Cut deer (Odocoileus sp.) bones and their respective meat cuts include femur (round steak, N=4), rib (roast, N=6), vertebra (T-bone, N=3), scapula (chuck steak, N=2) and pelvis (sirloin, N=6). From elk (Cervus canadensis) there were fragments of three ribs, one tibial section, one piece of femur and one of pelvis. Both the deer and elk bones were from young animals and the butchering marks indicate that they were cut by hand rather than with a band saw. Several domestic pig (Sus) teeth were also found. Other bone fragments found were unidentified.

Several small oyster shells were found in the site, as well as a number of razor clams (Siliqua sp.) represented by 22 valves, or a minimum or 11 clams.

A variety of intrusive rodent bones were also found in the site.

DISCUSSION

The goals of the Fort Stevens Archaeological Project, in its 1979-1980 seasons, were generally to:

1. Locate the remains of one of the buildings of the Civil War-era Old Post, in order to determine if extant maps of the early military reservation were accurate.

2. Determine the extent of disturbance of the site, particularly that caused by the construction of utilities and the adjacent noncommissioned officers' dwelling.

3. Assess the physical condition of the architectural remains, and their suitability for interpretation to visitors as part of the State Park's historic interpretive efforts.

4. Provide training in archaeological field techniques for students and interested volunteers.

5. Education of tourists visiting the historic area at Fort Stevens State Park on the importance of historic preservation and cultural resource management.

These aims were accomplished through the archaeological work which was conducted and through subsequent research. The remains of one of the early structures were uncovered and identified, verifying the original maps of the site and later suppositions. The subsurface remains of the structure and accompanying items of material culture were severely disturbed due to the following activities:

1. Construction of the adjacent buildings on either side of the original officers' residence, and the later destruction of

these buildings to ground level. The subsurface brick foundations of these buildings are open to view at present and are subject to vandalism.

2. The construction of underground utilities including water and sewer lines in trenches through the remains of the earlier building.

3. The destruction and salvage of the original building and some of its components.

4. Rodent activity, which has occurred throughout the site even to the deepest levels of cultural deposits.

5. Holes dug into the site for the deposit of crankcase oil from the nearby motor school.

Thus there has been smearing and blending of subsurface cultural materials, both laterally and vertically, and in some cases in a random displacement. It is very difficult to make statements on the depositional significance of material remains in such a disturbed context.

While the brick foundations of the officers' residence, porch foundation pillars and fireplace base have been exposed and identified, the condition of these remains is extremely fragile. State Parks officials were given a recommendation that the exposed foundation not be left for public view based on the condition of the remains and the possibility of vandalism. Such malicious behavior occurred several times during the projects in 1979 and 1980, even though the site was in view of tourists and State Parks personnel. It would be possible to stabilize the foundations and open them up for public viewing; at the end of the projects the remains were covered with plastic and backfill carefully placed around the standing portions of the structure.

A number of students, volunteers and park personnel were exposed to archaeological field techniques and data recording. Several thousand visitors to the site were exposed to historic-sites archaeology, historical interpretation and demonstrations of cultural resource management. The pedagogical value of the project was enhanced by widespread publicity given to the project in its two years of operation.

The project provided a good deal of information too on an early structure of the Old Post and the behavior of the occupants of that structure. There was an interesting blend of the domestic life of the officers' families and, superimposed on that, the military nature of the larger site. The military character of many of the artifacts reflects a pattern recovered at similar posts throughout the Pacific Northwest, including Forts Vancouver (Chance and Chance 1976), Hoskins (David Brauner, personal communication 1989), Townsend (Thomas 1977), Walla Walla (Sappington and Wyss 1988), Orford (Minor, Beckham and Greenspan 1980), Spokane (Combes 1965) and Camp San Juan Island (Masich 1979), and at other military sites in other parts of the country, particularly Fort Bowie in Arizona (Herskovitz 1978) and Fort Mackinac in Michigan (Brose 1967). Generally, the military character of these sites is revealed in utensils and dishes with unit insignia or quartermaster department markings, uniform insignia and buttons, ammunition and occasionally parts of firearms, canteens, knapsack hardware and other accoutrements of military life. Non-military but presumably masculine items found at each of these sites are clay pipes and alcoholic beverage bottles, often whiskey, wine and beer.

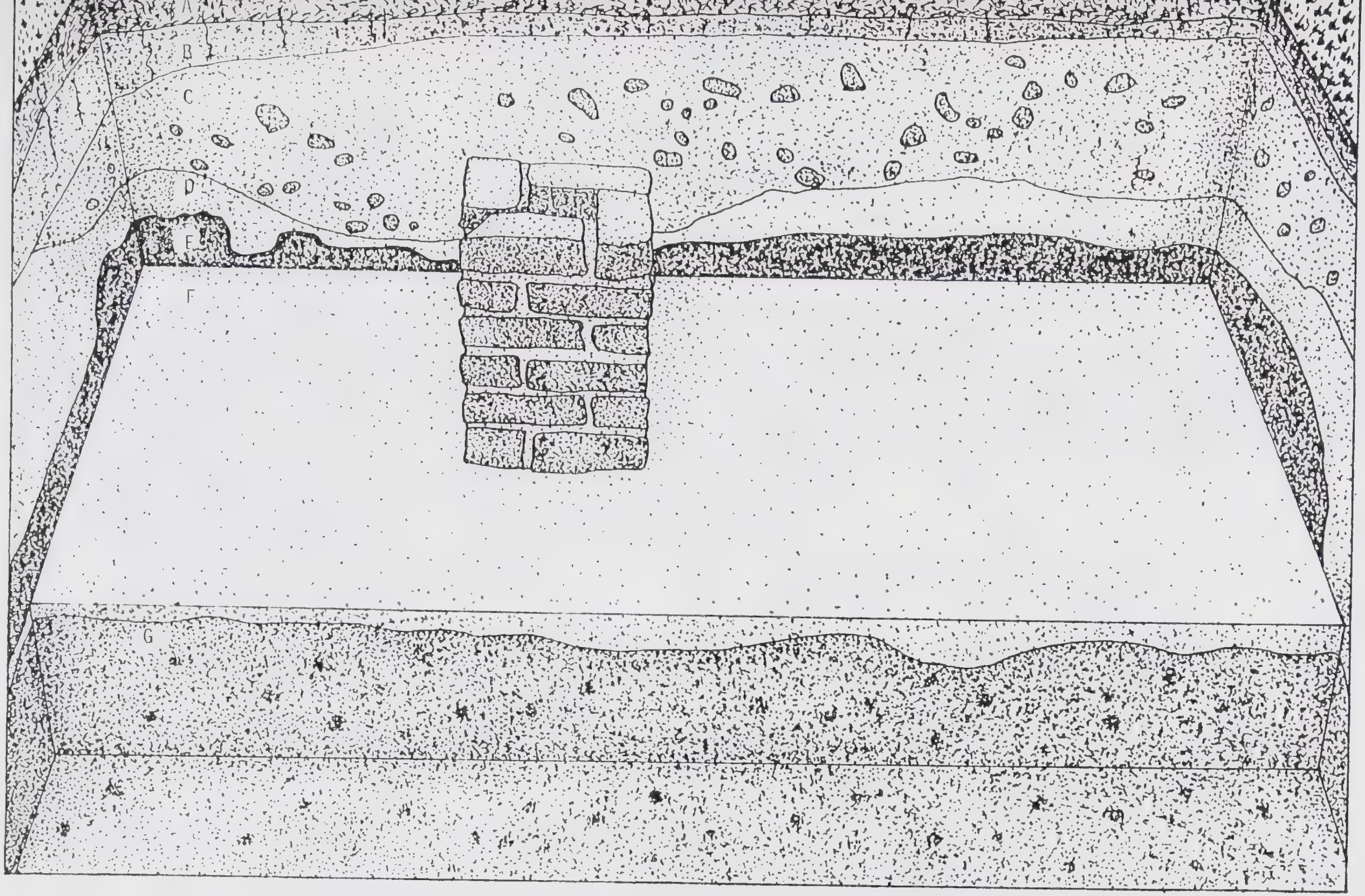
The domestic side of life at the officers' quarters is revealed by a collection of artifacts which resemble those found at the other military settings and also villages, such as Silcott in southeastern Washington (Adams, Gaw and Leonhardy 1975), the Stauffer-Will farmstead in the Willamette Valley of Oregon (Minor, Jacobs and Tilton 1981), and more isolated sites from Telocaset in northeastern Oregon (Mead and Womack 1975), Baker's cabin in the lower Willamette Valley of Oregon (Wahlke and Woodward 1975), Kate's Allotment on the Warm Springs Reservation in central Oregon (Minor and Toepel 1980), the Bay View cannery site on the Columbia River across from Astoria (Gehr 1975), to the numerous historic sites along the middle Columbia River (Thomas, Larson and Hawkes 1984). A similar domestic component may be found in industrial sites including the Northern Pacific Railroad camp at Cabinet Landing in Idaho (Landreth, Boreson and Condon 1985) and the railroad camp at Joso Trestle near Lyons Ferry, Washington (Cleveland 1983).

There is greater similarity among the military and civilian sites mentioned above than between either military or civilian sites of this era and those of a half-century earlier, for example the townsite of Champoeg on the Willamette River in

Oregon (Speulda 1988), the Willamette Mission nearby (Sanders, Weber and Brauner 1983) and the various fur trade posts and forts of the Northwest Company, the Pacific Fur Company and the Hudson's Bay Company (for an overview see Ross 1975). The primary reasons for this perceived similarity are increased commercial manufacture of goods and improved transportation systems making manufactured goods more affordable and accessible in the rural western portion of the United States. Because of these two factors, there is probably less of a disparity of absolute numbers of manufactured items per household based on social stratification within a community than was the case a half-century earlier, though this needs to be tested empirically. Thus the material culture of an 1880s military post resembles, to a large extent, the material culture of an 1880s village more than an 1850s military post.

In most of these military sites, there is a fairly uniform collection of artifacts within the personal, domestic and architectural categories, which are consistent with synchronic civilian homestead sites. Overlaid on this domestic component are a variety of materials related to the larger context of the site as an household within a military site. More specialized activity areas which might be encountered in a village or homestead (such as blacksmith shop, store, butchering area, stables or carpentry shop) are present at Fort Stevens, but outside the excavated area; the officers' quarters are a dependent unit within a larger site. This is in contrast to an historic homestead or mission which are largely independent of outside functions on a daily or weekly basis.

While it might be possible to excavate an "average" homestead site, and thus gain insight into the lives of the rural working class, the excavation of an highly specialized site such as a military post must not be taken as a "typical" site. It would be difficult to extrapolate from these findings to the lifestyle of the contemporary civilian citizenry, and such should be done with caution. However, increased study of specialized and generalized sites may return knowledge on the overlap between the two sorts of sites, and show that the material culture, especially in the personal and domestic realms, are not so very far apart. This is probably often the case when items of material culture (reflecting common technological, organizational and ideological components) are acquired from the same sources. While in a specialized site (blacksmith shop, shrine, bakery, ossuary or Post Sutler's Store, for example) form follows function, form is also following a cultural heritage and time element common to a variety of specialized and generalized sites. Thus many different types of sites can have a core component of common material culture with variability due to a specialized activity such as worship, commercial logging, defense, and so on.



Stratum A: sod layer, soil and roots

B: brown silt with ash and roots

C: tan sand with red iron concentrations (dune)

D: white sand with ash (fill)

E: black sand with clay and organic matter (living surface)

F: white sand and ash (fill)

G: consolidated red sand (deep weathered dune)

Fig.62

Perspective profile, north wall of test pit A with brick porch pillar

RECOMMENDATIONS

The National Register site at Fort Stevens should be protected from subsurface disturbance as much as possible in the future. This recommendation is most strongly made with regard to the earliest Euro-American component of the site, the remains of the Old Post.

A complete cultural resources inventory of the state park should be made, both to facilitate preservation and to enhance interpretation. Strong support should be given in both these areas to the park historian and, in the event that the Corps of Engineers relinquishes control of the site to state parks, the historian's position should be expanded and strengthened to include a Cultural Resource Management specialist. If further work is done to reconstruct early features (such as the earthworks) an archaeologist should be present during ground-disturbing activities to reduce the amount of information lost or destroyed.

Expansion of curation and interpretive activities is encouraged. The park's support group (Friends of Old Fort Stevens) should also be encouraged in their efforts to promote the fort and relate its history to visitors. The size of the park, the volume of its visitors and the historic structures make it an ideal site to teach the public about historic preservation and cultural resource management.

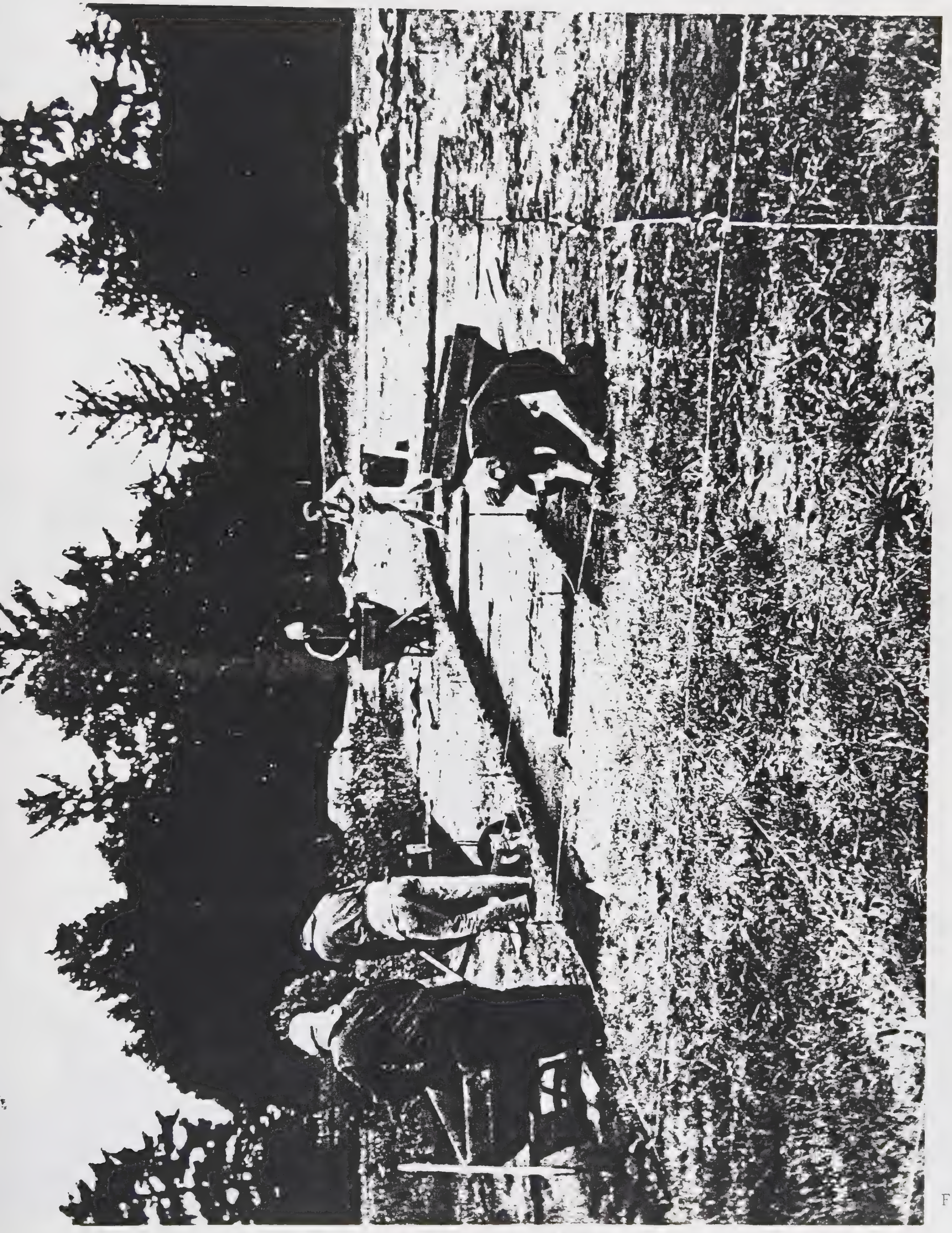


Fig.63

Excavations in progress, 1980

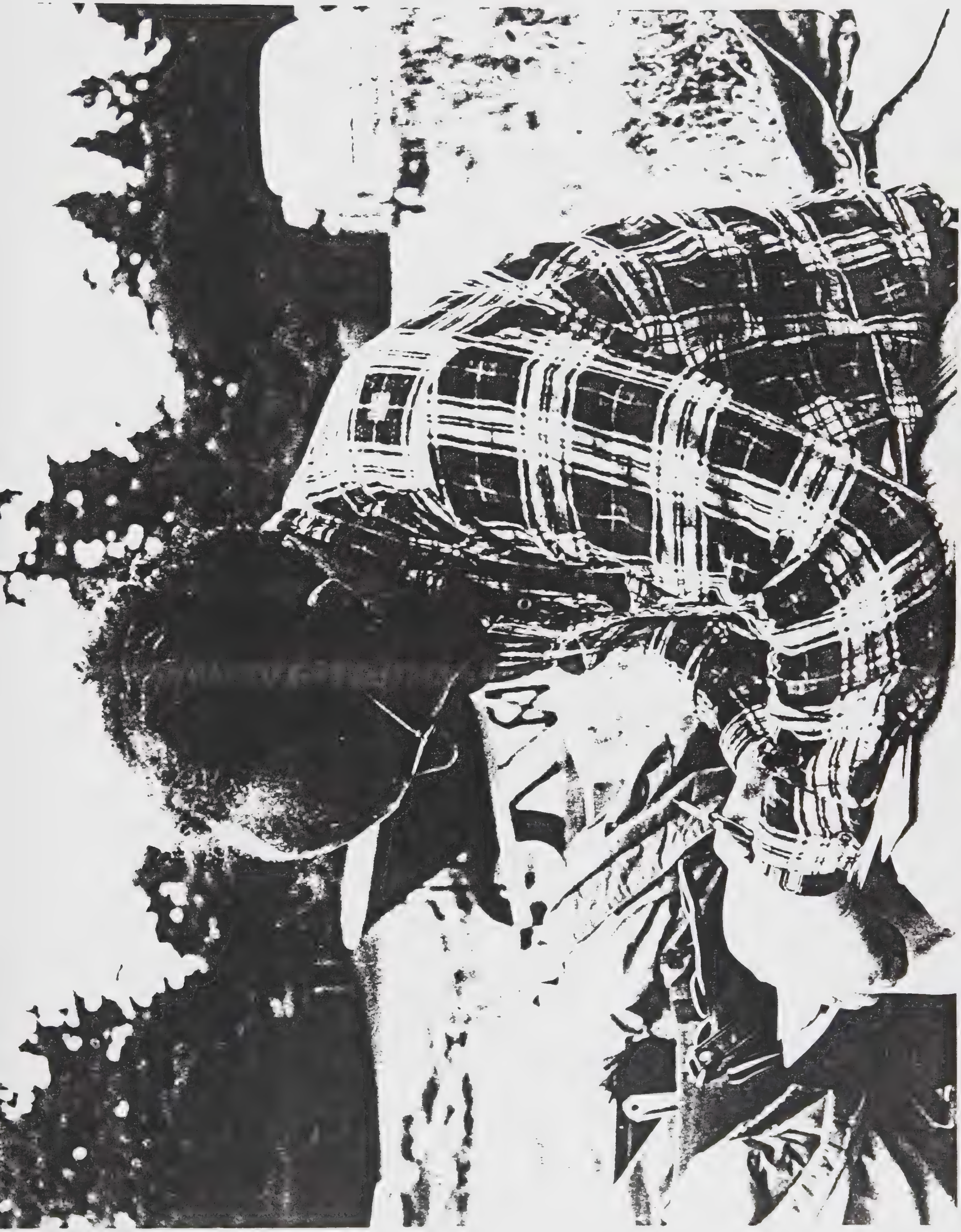


Fig.64
Data recording in progress, 1980

APPENDIX A: Field School Information

The field schools were conducted by Clatsop Community College as a lower-division course in archaeological field techniques. Generally, field work took place from 8 a.m. to noon each day, with lab work at the main college campus in the afternoon. During the summer of 1979, the seven regular field school students put in approximately 1100 hours in excavation and data recording. Regular volunteers contributed an additional 200 hours. There were also two weekends during the summer (21-22 July and 28-29 July) during which members of the public, under close supervision of the more experienced field school students, were allowed to participate in the project. These volunteers learned some of the techniques of archaeology and the importance of historic preservation in cultural resource management, as well as contributing approximately 200 hours of labor to the project.

Roster 1979

Director	Brian Harrison
Laboratory	Sharon Sage
Field School	Barbara Charles
	Betsy Kappus
	Kevin Spangle
	Rita Ginn
	Diane Ginn
	Steve Ginn
	Sharon Sage
Regular Volunteers	Margaret Harrison
	Kenny Ginn
	Sue Scully

The second summer's work was organized in much the same way. The six field school students put in approximately 720 hours in excavation and data recording, and regular volunteers contributed about 150 hours. Two volunteer weekends (19-20 July and 26-27 July) provided an additional 150 hours of labor under supervision by field school students.

Roster 1980

Director	Brian Harrison
Laboratory	Margaret Harrison
Field School	Barbara Charles
	Don Marshall
	Susan Erikson
	Margaret Harrison
	James Magnus
	Desi Franco
Regular Volunteers	Jeremy Harrison
	Edmonde Harris

For more information on the use of volunteers in historic preservation see Sage and Harrison 1980.

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